INDUSTRIAL-ARTS MAGAZINE

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INTRODUCTORY

VOCATIONAL Education, Art, Manual Training, Domestic Science and Household Art are fundamentally concerned with the same great problem. It is the great problem of all education—the conservation and enrichment of human life.

Too often, these subjects have been isolated and regarded as so many distinct and unrelated fields. According to this view, each field has had its specialist, who, if not antagonistic to those of the other fields, at least has felt but little of common interest with them.

Manual Training and Art teachers have been slow to recognize the value of intimate co-operation with each other in their work where it naturally relates and necessarily overlaps. The Domestic Science teachers have failed in a similar way to join in a united effort with the others, and the Vocational people have, in a measure, been suspicious of all of them.

Wherever this is true, there is a failure to realize or a tendency to ignore the fact that all are dealing with different aspects of the same problem, and that ultimate success lies in unity of purpose and harmony of effort.

The field of the industrial arts has yielded to the narrow specialization which is the distinctive mark of the age. In this respect, it has been somewhat less fortunate than some other great fields which have developed specialists without breaking up into unsympathetic groups. The field of Agriculture is a case in point.

With its marvelous achievement, specialization has gone into every phase of life, often to its great enrichment, sometimes to its impoverishment. The schools have profited immeasurably by the narrowing of the fields and the placing in charge of certain phases of work, persons who are familiar with those phases only, and who are interested in those exclusively. With all the improvement, this arrangement has given rise to some unsatisfactory conditions in the schools, especially in the elementary schools.

The supervisor or special teacher finds many conditions which keep the work out of touch with other school activities and even with home interests. The infrequency of recitation, and the impossibility of the supervisor's keeping in close touch with the regular classwork, contribute to this defect. Often the teaching has to be done thru wholly unprepared teachers, as many of the regular teachers have thought it unnecessary to prepare themselves on the special subjects since these are supposed to be handled by special teachers.

The *Industrial Arts Magazine* shall stand for the united arts, reaching out in manifold ways to accomplish one great aim. This aim embraces not alone the preparation for

financial returns from industrial work, but also the preparation which the duties of efficient citizenship demand. This publication shall recognize some distinction, but certainly no conflict between Manual Training and Vocational Education. In the specific matter of Vocational Education, it shall stand for the wisest guidance and the best training for those who must enter early into industrial pursuits.

But while it shall recognize the duty of the public school to offer such courses as will equip one for making a living, it shall further insist that that alone is not all that is desirable. It shall raise the insistent question, "What kind of life is the individual being fitted to live?" In other words, it shall seek to bring into harmony, all the elements that, united, shall lead the individual to the richest and most satisfactory life of which he is capable.

In undertaking to assist in the unification of the arts which are significantly called industrial, the *Industrial Arts Magazine* proposes to be sponsor for no particular systems, organizations, or institutions. It shall rather set itself consciously to the task of making the *welfare and best interest of the individual boy and girl the measure of all things.*

It is hoped that certain terms, easily confused in the industrial arts, may be re-defined; and that certain distinctions may be clarified which are necessary to a sympathetic understanding of the nature and purpose of these arts.

The supervisors and special teachers of the various lines of work, must come into more sympathetic and co-operative relations, and must work from the fundamental truth that theirs is the common field of beauty and utility—each in the other.

It is the firm conviction on the part of the editors that the elementary school, both city and rural, could very wisely devote much more of its time to industrial activities, without interfering at all with the effectiveness of the present courses. In doing this, the school would become real life, instead of a mere preparation for later life; and a fine attitude toward industry and thrift would be cultivated.

To do this effectively, the regular teachers must become more keenly interested and more skillful in these lines of work, in order that the supervisors and special teachers may have a fair opportunity to accomplish the desired results. Hence the *Industrial Arts Magazine* hopes to furnish the richest, the most helpful, and the most authoritative articles that can be had from any source, bearing on the specific activities which the regular teachers in city and rural schools may perform in relation to this matter.

It is the further hope that along with the interest of the supervisors and teachers, the interest of school administrators may be enlisted, by offering material from authoritative sources on the administrative aspects of the industrial arts in the schools.

In each issue of the Magazine, we hope not only to reach the leaders, but to present something which can be appreciated by the newcomers and which will be of the greatest advantage to the average teacher. The expert, who is far in advance of the procession, must bear patiently some of the more elementary discussions, and the newcomer must adjust himself to the idea of learning more than the mere elementary material.

To assist our readers in arriving at definite and correct conclusions, we shall aim to publish the opinions of persons, viewing important questions from various angles. The manufacturer, the tradesman, the schoolman, and the boys and girls, all have their points of view, and our columns are open to each and all of them.

The *Industrial Arts Magazine* has deliberately entered a broad field and undertaken a large task. It is the ambition of the editors and publishers to make the breadth of scope indicative of the breadth of view which shall characterize all its policies.

Practical Correlation in House Furnishing and Decorating

By M. F. Gleason, Supervisor of Drawing and Construction, and
L. Day Perry, Director of Manual Training, Joliet, Ill.

MUCH of the work on house furnishing and decorating is practically valueless to the immature mind because it is purely theoretical. It lacks life and seldom ever affords opportunity for profitable experimentation, and experimentation is the basis for much of our lasting knowledge.

It is generally agreed that the ideal way to carry into practice this essential branch of industrial work is by means of a small cottage placed at the disposal of the classes, with an aim to lead them into a liking for well planned and well decorated homes. In most communities, however, this is an impossibility because of the expense.

Joliet overcame the obstacles which the expense side of such an undertaking presented. It is the object of this article to tell how this was done and how the educational activities incident to house furnishing and decorating were directed.

The general plan of work served two purposes. In the first place it gave excellent opportunity for the study of interior furnishing and decorating, and in the second place, it supplied pleasing back-grounds for the placing of the products of the Manual Training, Household Arts, and Art Departments, giving to the general public a better insight to the value of each department and to the greater value of correlating them.

It is not thought necessary to discuss in detail the educational value of such an undertaking. In this day of progress in education all of us who are working along the industrial lines can see the great good which must grow out of work of this kind, and because of this fact the story of how the plan was carried out will be told very simply without elaborating on pedagogical reasons for so doing.

It was decided by all concerned that our house should consist of the essential rooms of the average house, namely;—living room, dining room, library, bed room, and child's room. The library may seem a luxury, but its treatment was such as might make it serve as a living room. No kitchen was planned because the kitchens of the Household Arts department served as examples, with modification, of what such a place in the home should be.

The building in which the industrial work of the upper grades is now carried on was formerly the city high school. A large rectangular room about fifty by one hundred feet was used for assembly. This room furnished a first-rate floor space for division into rooms needed.

Portable partitions were considered more desirable than stationary ones, for from year to year the general room-schemes may be changed. Over these partitions made of "two by fours" and in sections, heavy unbleached muslin was stretched. Starch was then applied with a large flat brush and allowed to dry. This process supplied the necessary stiffness to the cloth. Kalsomine of the selected colors was then applied. Window and door casings, trimmings, and panelling were made of wood in the regular interior finishing manner, and either stained or painted.

This method of making partitions proved not only much less expensive than permanent and more substantial ones, but also as serviceable.

The eighth grade of our school system is centralized in a building located in the same block with the Manual Training and Household Arts School. Departmental work in all lines is done here. This plan gave a good opportunity to allot different rooms to the classes in drawing under the teachers of the subject.

Having a definite end in view is a very great satisfaction to the teachers and children of drawing classes. Boys and girls usually do not have the same amount of interest in given lines of art work. Boys incline toward constructive drawing; girls more toward decoration. Because of this fact and because the application of design in woodwork, metal and other lines carried on in Manual Training work differs very greatly from the application of design in the Household Arts department, we bring the boys of two rooms together for the instruction most beneficial to them. The same is done with the girls. By such division we are able to get at the essentials much more quickly than if they are kept together.

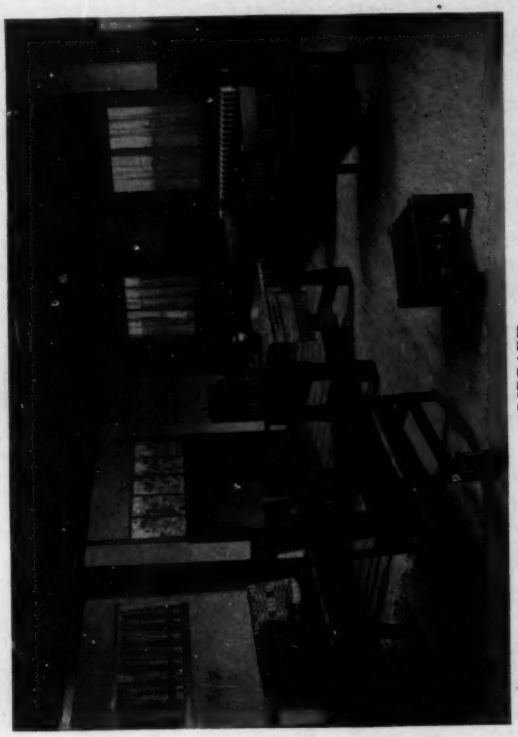
Both boys' and girls' classes worked on designs for wall spaces. They also worked together on color schemes for the walls. These have general underlying principles, a knowledge of which is useful to men or women in almost any walk of life.

After the completion of work common to both classes was finished, and the wall designs chosen, the boys took up the designs to be applied in their own department. This included working drawings and designs for furniture, decoration for copper, such as sconces, lanterns, and desk sets, and the mechanical work necessary for the execution of the various problems.

The girls took up the planning of designs to be applied in needle work and on the looms. Designs were made for doilies, pillow covers, curtains, rugs and table runners.

The panelling of walls, placing of windows, doors and shelves presented good opportunity for thought and discussions of space relations. The use of the room was kept in mind at all times. Suitable spaces must be provided in the dining room for the serving table and china cabinet; the bed must be accommodated in the bedroom; a shelf must be put in the child's room to hold toys; space in living room for large davenport.

JOLIET is, of course, fortunate in its buildings, etc., but with the spirit of co-operation which is abroad among the supervisors, teachers, and superintendent, the same results, even if less conspicuous, could have been achieved anywhere and under very much less favorable circumstances. Such work would have been clearly impossible without the enthusiastic support and intelligent assistance of the superintendent. Much credit, therefore, is due Mr. Edward F. Worst of Chicago, who was then the superintendent at Joliet.—The Editors.



LIBRARY.

CHILD'S ROOM.

LIVING ROOM.

SITTING ROOM.

ROOMS DECORATED AND FURNISHED BY PUPILS IN THE ELEMENTARY SCHOOLS OF JOLIET, ILL.

Lessons in color decoration followed those in spacing. Colors were chosen from the standpoint of location and use of room. The living room was theoretically located where it received much light and sunshine, consequently its walls were done in cool gray greens, with trimming to harmonize. The dining room and library were tan, the bedroom a light gray and the child's room a deep buff.

Very little wall decoration aside from the panelling and color was attempted excepting in the child's room and the library. Simplicity was the keynote thruout and the tendency to over-crowd or over-decorate was carefully avoided. Rooms practical and beautiful because of their simplicity, with furnishings, from well proportioned furniture to unpretentious floor coverings and hangings, were held up to classes as ideals.

The unity of each room was carefully considered. The body color of the curtains harmonized in some way or other with the wall colors, as did also the floor coverings.

In the library, over the fire-place, a frieze of holly hocks in water color was placed to give a note of color to the room. The red of the flower and the green of the foliage were used in the block-printed curtains.

The value of careful selection from commercial sources was shown thru the decoration of the child's room. The figures used in the frieze were taken from Mother Goose wall paper and arranged in border form against a background differing in tone from the general color of the walls. The counterpane on the bed especially constructed for a child's use, and the hangings at the windows, were made of well chosen scrim. These were block-printed in animal forms interesting to children. The hangings at the door were made of crash and decorated in the same manner as the curtains.

In some of the rooms curtains were made from materials purchased direct from stores without hand decoration. In others the curtain material was dyed to harmonize with the wall colors.

Many of the door hangings, pillow tops, runners, and all the floor coverings, were products of the hand looms. Many of these looms were made by the wood-working classes as group problems. The warp and materials used for woof were purchased white and dyed in harmony with the colors of the room.

With few exceptions all the furniture used was loaned by the makers until the close of the school year. When a set of furniture was wanted, as in the case of dining chairs, several boys were found who wished to make straight back chairs for their homes. These followed the same drawing and the result was a set of chairs alike in design. Several of the larger pieces, such as the large davenport, and the beds, were group problems; that is, they were made by a group of boys who had completed their individual problems.

Combinations of materials, such as wood and cane, wood and leather, wood and rattan or fiber, and wood and metal were encouraged. A good grade of imitation leather was used in the upholstering. This was much less expensive than genuine leather and quite as serviceable, and made possible the upholstering of all furniture that required it.

In some cases the upholstering in a certain room did not correspond, because the boy was encouraged to use the material which would be appropriate to the place in his home for which the piece of furniture was intended.

With the girls the appropriateness of materials to certain kinds of work was considered. Soft materials were used for block-printing, linens were chosen for the application of design in the darning stitch, and goods which hung in soft folds at the windows were deemed better than the heavier kinds.

To complete each room and to give each a home-like atmosphere pieces of pottery, made complete by classes in clay work, and copper articles, made in metal classes were put in their proper places in the rooms. A vase form for flowers on the table; an inkwell and paper weight at the writing desk; and a tile, creamer and bowl on the serving table were from the classes in pottery, designed and made for particular use.

The use of metal is shown in the drawer pulls and strap hinges, the lantern hanging over the reading table, the card trays and the desk set.

The amount of good which an undertaking of this kind accomplishes is always difficult to determine in a definite way because the school is unable to keep in close touch with the children after they leave. There can be no doubt, however, that its influence extends in more directions than we can ever know. It is quite impossible that so great a number of well planned and carefully executed articles of various descriptions be scattered thru the homes of a city's population without having a great deal of influence. The entrance into a home of a chair or table of good design and finish must have set a standard as to what qualifications furniture of future purchase should have. Rugs of subdued colors well combined must have had an effect on the purchase of future floor coverings.

The many questions asked by the hundreds of people who saw the completed house were an indication of the interest in the work and the remote recesses into which its influence might reach.

An indication of the far-reaching effect of this effort came to our notice. One of the boys, who was instrumental in carrying out the plan, and his brother, decorated their own room at home, kalsomining the walls and applying a decorative frieze by means of a stencil. The stencil was designed and cut out by him.

A tendency on the part of the girls to plan problems on which they were working, to be appropriate and suitable for definite places in their homes, was very noticeable after the experience of fitting the practice house.

The interest of children and their happiness are two points worthy of much consideration. They are inter-related, for the one presupposes the other. They are a very good indication of the amount of lasting good the children get out of the work at hand. Such being the case, in this instance it is very evident that the benefits derived were quite beyond calculation or measure. No one shirked, no one minded a little over-time when needed. All seemed anxious and willing to put his or her best into what was to them a very real problem. To the fact that it was a real problem can be attributed any measure of success that crowned the effort.

A PROGRAM FOR VOCATIONAL EDUCATION

By Wilson H. Henderson

In our efforts to train for efficiency, we must not place all of the emphasis on the first syllable of the word workman; the first is important only in so far as it serves the second.

IF progress in a movement were measured by the number of books written and the amount of talking done on the subject, the problem of vocational education would have been solved some time ago. Unfortunately, or perhaps fortunately, such is not the case, and many school authorities are as undecided as to the proper method of approaching the task as they were several years ago. In all of the confusion and the mass of material which has been accumulated there is much which is worthless, and considerable which may be utilized. In the very near future we must decide what we want to do and how we are going to do it, and proceed to accomplish something. Our present situation seems to be "We don't know where we're going, but we're on the way." In much of the literature on the subject of Vocational Education, the issue is befogged by controversies on the subject of industrial education in Europe, and by chapters on "The Attitude of the Manufacturer", "The Attitude of Organized Labor", and Maintaining Our Commercial Supremacy", all associated with the subject of elimination and retardation in the schools, and we seem to be lost in chaos. If we have no desired destination, it is just possible that certain interests which have in mind a destination for us which will be advantageous to them, may influence our course with disastrous results. If we can determine a desirable goal, altho we may not hope to arrive there in the immediate future, we can take each step in that direction, and thus will be constantly nearing the destination.

The Purpose of Education.

Without attempting to state *the* purpose of education we may state that one of the purposes is to make every boy and girl vocationally efficient. Every graduate of our schools should be able to make at least a living for himself. It is with this purpose of education that those interested in Vocational Education are concerned. Our chief interest is the welfare of the boys and girls, and while the questions of the future of capital and labor are legitimate questions for discussion, still they are not our problem. Manufacturers have unlimited capital at their command and do not need our aid, and in fact they do not consider schoolmen capable of doing much anyway. Organized Labor has salaried representatives in Congress and elsewhere who are quite capable of caring for its interests. We are paid to provide for the future welfare of the boys and girls. The purpose of manufacturing establishments is the making of profits; Labor is organized for the purpose of collective bargaining in order that laborers may secure a greater share of the products of their labor; neither of these institutions is interested in education primarily, except in so far as it contributes to its purposes. If we will bear it constantly in mind that the function of schools is the preparation of children for citizenship and if we will attend to our duties as zealously as these organizations do theirs, we will not go very far astray.

Production of Skilled Workers.

Some persons fear that with efficient vocational schools, we will produce too many skilled workers who will take the places of men now in the industries. If we do not produce skilled workers, who is to do the work of the present skilled men when they retire? Furthermore what are the boys and girls to do for a livelihood? In the home of the writer there used to be a family cat (emphasis on *family*), and about twice each year the old cat would declare dividends in the shape of four or five kittens. Sometimes the neighbors were glad to get mouse-catchers and we had no trouble finding places for the kitties. Whenever the neighbors were amply supplied with cats, the little mouse-catchers were drowned. This was a very practical and extremely effective method of adjusting the supply to the demand for that particular work for which the kittens were fitted, and more humane than depriving them of the means of a livelihood. If there is an over supply of productive labor, over production may be avoided by decreasing the working hours for all laborers, or we may increase consumption by raising the standard of living. The boy who must support himself has a right to a job equal to the man's.

Elimination of Retardation.

It is my opinion that the first step in the new movement is the checking of retardation in the lower grades of the elementary school. We cannot hope to make an intelligent workman or an efficient citizen of a person who has not the development of a sixth grade child. The amount of work required in a unit of time must be such that every child can accomplish the work and "pass." If a certain amount of illness is unavoidable to the normal child, we should make allowances for the normal amount of illness. We should have special classes for sub-normal children, and if these children cannot accomplish the work required of other children, let us recognize the fact and not require the impossible. At the age of twelve every child should be at that stage of his development that is usually designated as the sixth grade. Under the present compulsory education laws, this would give every child two more years before leaving school. In these elementary grades we should have a liberal amount of handwork, Manual Training, not only for the sake of interest in the school work, but for pedagogic reasons. Good teaching in these grades is impossible without it. The manual training given in these grades is not industrial training, and should be given for the purpose of developing the motor areas of the brain and for motivating the other work. Mere "busy work" does not answer the purpose.

Pre-vocational Work.

Beginning with the seventh grade we should have pre-vocational work, that is, semi-specialized, intensive work in as many different lines of technical processes as possible. The purpose of this work is the giving of experience in real work so that the child may know what he may expect to find in business and industries. There should be sufficient time devoted to this work to give the child a taste of real work, and a knowledge of shop conditions and routine. The child who is compelled to leave school at fourteen will here learn the kind of work in which he may hope to succeed, and the demands which this work will make upon him. The child who might leave school at fourteen because of a lack of interest in school work, may learn that the work which he craves is not what he imagines it to be, and that if he is to succeed he must become better prepared for that work. Such a course will not be opening the door and pushing the child into the industry, but it will be showing him what is on the other side of that door, and he will be better enabled to make an intelligent choice of occupations when he opens the door for himself. To my mind, this is the most effective vocational guidance which we will be able to give, and it will reach the full 100 per cent of the pupils in the schools, since every child may have two years in such a school.

The Vocational School or Course.

At the age of fourteen the child should be allowed to enter a vocational school or course in which he may receive training for the trade or vocation which he has decided that he would like and for which he seems to be fitted. The work in this school should be specialized with approximately three-fourths of the time devoted to technical subjects and processes. This training should not be a short cut to a job, but should be a thoro training and a thoro preparation for efficiency in the work which has been chosen. It has been demonstrated that a boy can learn a trade and can acquire a considerable degree of skill in a school, and persons who claim that it is impossible to learn a trade in a school are ignorant of the facts. To be sure, the school will not graduate experienced mechanics, and the boys will not have men's heads, but they will know the technical processes and will not be green. For the boys and girls who are to enter business as clerks, bookkeepers, stenographers, or accountants, we should have two-year "business" courses such as are offered in many high schools at the present time, but these should be accessible for every child of fourteen.

We are not recommending that every child be compelled to attend a vocational school, but that *a* child be *allowed* to attend such a school. We do not recommend that the present high schools be abolished or turned into vocational schools, but we urge that some provision be made for the 75% of the boys and girls who never attend high school under present conditions.

Wages of Children in Schools.

To make it possible for children to remain in school for this training, some plan must be devised by which the child may be paid for his work in the school. The objections to this plan are that it will be expensive, and that if we put the boys at some work in the school, for which the school may collect money, the boy will be competing with men. As to the competition objection, we should remember that if the boy were to go to work in some commercial establishment he would not only produce enough to pay for his wages but for the profit of his employer on his work. If we place the boy or girl at some manufacturing process in the school by which he may make perhaps less than he would make in the industry, and on which the school does not make a profit, he will be producing considerably less than he would in the industry. We would thus in a degree be removing him from competition with laboring men.

If the child produces what he is paid, the payment will not be an additional expense to the school, but if this is undesired or impractical, suppose that the school pay to each boy and girl, three dollars a week for two years. This would make a total of $300 in the two years. Add to this the cost of the schooling which will be perhaps $200 a year or $400 for the two years, and this is a liberal allowance. That makes a total cost to the community of $700 for the education of the boy after the eighth grade. Let us compare this with the cost of the education which is given the boy or girl who wishes to enter the professions. The four years in the high school cost at least $75 a year or $300. If we will

What shall we do with the 10,000,000 boys and the 10,000,000 girls that are registered in the schools of this country?

TEACH this mass of growing manhood and womanhood HOW TO LIVE and HOW TO SERVE, and, instead of the thorn of illiteracy shall come up the fir tree of intelligence and instead of the briar of crime shall come up the myrtle tree of righteousness, and it shall be "for an everlasting sign that shall not be cut off."

JOSEPH C. PARK

divide the amounts annually appropriated for the state universities by the number of pupils, we will find that the states expend something over $400 a year on each student. Therefore if the high-school graduate goes to the state university, the state will give him four years' schooling at a cost of $1,600. In fact, the student may remain six years at a total cost of $2,400. Now if the state will allow the cost of one year's schooling in the state university and the city will allow just what it would have cost to send him thru the high school, the boy will have his vocational school course and be paid for his time at a saving of $1,200 to the state, which it would have cost had he attended the state university. Is this not nearer "single-handed justice" than some of the schemes that are advocated?

Continuation Schools.

In the immediate future, the continuation school will perhaps contribute more toward the education of industrial workers than any other one institution, but before accepting it as the last word in efficiency, it should be carefully scrutinized and tested as to results. While I feel that we should accept it at once for what it is worth, at the same time I feel that in any complete system of industrial education, it should be considered as nothing more than a "make-shift" in so far as juvenile workers are concerned. While it is a step in the right direction, I hope that we will soon arrive at the place where we do not need the continuation school as it now exists.

By continuation school we mean that type of day-school which is attended a certain portion of each week by those persons who are engaged in gainful occupations. The time spent in school ranges from four to eight hours a week, usually five hours. Since the Wisconsin vocational schools are perhaps better organized than any others in this country, and are certainly as good as any others, let us consider them. The entrance requirements of the Wisconsin continuation schools are: 1st, that the pupil be between the ages of fourteen and seventeen and shall not have completed the eighth grade. 2nd, he shall be regularly employed during the hours when school is in session. The report of the Committee on Industrial Education of the National Association of Manufacturers states that 85% of the children who leave school at the ages mentioned, enter blind-alley occupations. The requirements of 85% of the students, therefore, is that they shall have blind-alley jobs. The child attends school five hours a week for two years, and in that time he is instructed in the theory and practice of the occupation in which he is engaged, he learns those things he missed by not completing the eighth grade, is taught the duties and responsibilities of citizenship, etc.

In our estimation of the continuation school we must clearly discriminate between boy labor and apprenticeship. The apprentice is placed in an industry under a contract which provides that he shall be taught a trade or a craft. The apprentice is not in a blind alley as his training is provided for by contract and his future standing as a workman is assured. However, we must remember that apprenticeship is becoming almost non-existent in this country.

We found that 85% of the children who attend continuation schools are in blind-alley occupations, and that they were located there before they came to the school. Now what is done to get them out of the blind-alley job? Are they promoted in their shopwork as rapidly as they are prepared for promotion? If there are no opportunities for promotion in the establishment in which they are working, is any effort made to find them places where they will be promoted? If these things are not done, then the child must remain in the blind alley. Do the records of the boys and girls in the continuation schools show that the pupils received substantial increases in pay after attending the school for a year? If the school increases the efficiency to an appreciable extent, the pay should be increased proportionately.

In describing a continuation class in Wisconsin, the Chairman of the Wisconsin State Commission on Industrial Education says: "I found in the first class that I entered, 35 to 40 little boys from a toy factory where they had been working for long months at maybe $4 to $5 a week—working with their hands, not with their heads nor their understanding; white, pale little people, clad in little black torn workingmen's shirts, with patched trousers, working with an earnestness that was inspiring." I cannot accept that as a "perfect" school nor as a desirable destination for the movement for industrial education. The picture is somewhat depressing to me.

Co-operative School and Shop Courses.

We have at present in operation in several cities, part-time co-operative courses, whereby the commercial shop provides the technical training necessary for the learning of a trade, and the school provides the necessary mental training. For the boy who must contribute toward his own support and who wishes to learn a trade, the plan is admirable. When the pupil completes the course, he has not only a high-school education, but he has a trade, a position, and he has earned a considerable sum of money. These courses have the disadvantage that they are open to only comparatively few boys, and the boys remain only on consent of the proprietor of the establishment.

The evening school in which persons who are employed during the day may secure supplementary education, is another important agency for efficiency. Like the continuation school, it is not the most desirable form of school, but it fills a need and is a step in the right direction. The evening school offers the person who is a misfit the opportunity to make himself fit, or to prepare himself for some other occupation. It also offers the person of low efficiency the opportunity to increase his earning capacity. However, if things were as they should be, the evening school would be unnecessary, but until we can build up a more efficient educational system, the evening school will remain a necessity.

There is in this program for Vocational Education no one unit, scheme or course which will, by itself, solve the problem. They all have their places and it has been our purpose to show their relative values as agents in the solution of the problem. In subsequent articles, we shall endeavor to give detailed accounts of schools and courses representing all of these types.

PRACTICAL SCHOOL SHOP FORGING

By Thomas F. Googerty, Pontiac, Ill.

ONE of the most essential things in the school forge shop is a good forge and fire; half the work is then mastered. A few years ago nearly all of the small commercial shops running from one to six or more fires were equipped with brick or iron forges. The blast was furnished either with a bellows or fan which had to be turned by hand. This method was a great drawback, which resulted in much loss of time. It was impossible to do much work without the aid of a helper. Work that required two men in those days is being done now by one. Modern invention has played an important part in simplifying the labors of the workers in iron and steel. At the present time there are various kinds of forges in use that lessen the work of the smith. The most successful factories are now equipped with modern forges and appliances in order that they may be able to do work quickly.

In our manual training schools, where the pupils have such short periods in which to do work, it is necessary that their shops be equipped with modern tools so that they can produce work quickly. This will give the individual pupil more practice in a shorter length of time, which simply means more knowledge. Our schools should not be hampered by using forges that have been out-of-date for years.

The best forge for manual training and trade schools is the down draft with power driven fans, thus eliminating all pipes overhead and doing away with the dust and dirt. A boy, working at this kind of a forge can use both hands in the handling of the work being heated in the fire; this is a great advantage over the old way of turning a crank. Another good feature of the mechanical draft forge is that it teaches a boy early how to avoid over-heating or burning his iron. This is the first thing one must learn in working at forging, as one who cannot heat the metal properly cannot work it. One must become acquainted with the material, and the burning heat must be understood.

Fig. 1 shows an illustration of a down draft forge suitable for schools; it is made from cast iron. A pressure fan furnishes the blast for the fire and an exhaust fan takes away the gas and smoke thru an opening at the bottom of the hood, and thru a large pipe which continues under the floor and out thru a flue. The hood represented at A, can be moved backward and forward to catch the smoke. The hood is moved with a crank and worm gear as shown at B. The hearth is shown at C; a hole in the center is called the tuyere. This is where the fire is built and is the outlet for the wind. The amount of air needed for fire is regulated by a valve that is moved with a rod shown at D. The coal box is always at the right hand of any forge and is shown at E. The water box is represented at F. At G is shown the pressure pipe and at H the exhaust pipe. Notice the large opening under the forge at I. Thru this opening any nut or screw under the tuyere can be tightened with ease. Notice the slide-rod at J. This rod, when pulled, dumps the cinders out of the tuyere and a bucket may be set under the hearth to catch them. In school shops these forges are generally set in pairs in order to save room. Fig. 2 shows three fire-tools needed for the forge fire. These tools consist of a poker made from ⅜-inch round stock, 26 inches long with a loose eye turned on one end for a handle; a shovel with a flat blade 4x6x1/16 inches with a handle riveted to the blade and a tool called a scraper. This scraper is made from the same stock as the poker and is made with an eye at one end and a flat hook at the other. It is used to scrape the coal and coke on to the fire, and to move pieces of coke or coal, so that the iron may be seen while heating.

Fig. 1. A Typical School Forge.

The anvil should be of wrought iron with a steel face, weighing about 125 pounds. This is large enough for any work being done in manual training schools. In the school shop the anvils should all be of the same size and weight, so that any tool used with them will fit into any square hole. In factories where anvils are made, they are forged from wrought iron or soft steel, with a carbon steel face welded on; some are cast steel thruout and others are cast iron with a steel face. The face is generally about ¾ inches thick, and is hardened to resist

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Mr. Googerty has been a teacher in the summer school of forging at Stout Institute, Menomonie, Wis., for the past four years. He has exhibited his work in the annual exhibitions of the Art Crafts at the Art Institute of Chicago, and in exhibitions of the Boston Society of Craftsmen, of which he is a member.

Mr. Googerty will present in the Industrial Arts Magazine a series of articles on school forging, tool steel work and ornamental iron work, of which this is the first.—The Editors.

heavy blows from the hammer and sledge. (See drawing Figure 3 of anvil.) The anvil should be fastened with iron straps, on a 10x10 inch block, set into the ground about 3½ feet. From the top of the anvil to the floor should measure 26 inches. The proper place to set the anvil in relation to the forge is shown in drawing Figure 4. The smith should stand between the forge

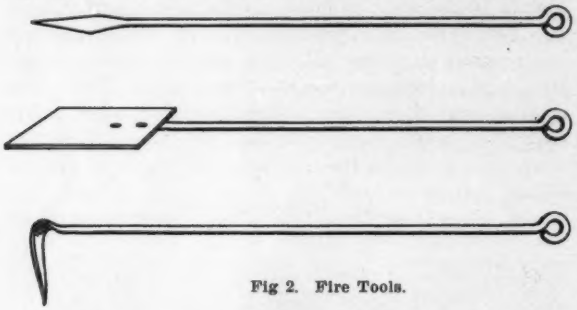


Fig 2. Fire Tools.

and the anvil, with the horn of the anvil at his left when facing it. The anvil edge farthest from the smith is called the outer edge and the one nearest the smith is called the inner edge.

Every anvil should have two ball hammers weighing about 1½ and 2 lbs. each. (See drawing of hammer,

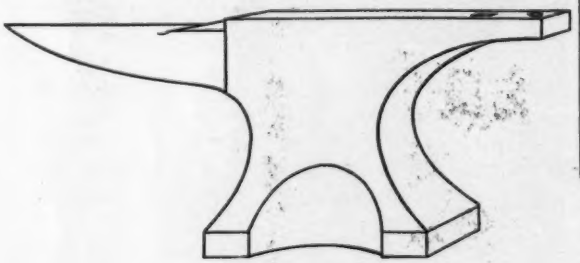


Fig. 3. Anvil.

Figure 5.) The hammers should be numbered corresponding with a number on the anvil. All the hammers should be kept in a rack when not in use. When the pupils come into the shop to work, they should be assigned to a certain forge and held responsible for the care of tools. A 10-pound sledge hammer should also be included, perhaps one for every two forges; the handle should be 26 inches long. (See Figure 6.)

A piece of tool steel fitted into the square hole of the anvil and sharpened at the top, is called a hardie. It is used in cutting iron. A piece of iron is set on the sharpened edge of the hardie and struck with the hammer. The sharpened edge of the hardie cuts into the iron, and in this manner it is cut deep enough so that it may be broken. (See drawing of hardie Figure 7.)

If a piece of steel is pointed on one end, it can be hammered thru a flat piece of iron. This is one method of punching holes in iron, and the steel punch so made is called a hand punch. They are made out of ½-inch to ¾-inch hexagonal tool-steel bars about 11 inches long. (See drawing Figure 8). For heavy punching, a short, thick punch with a hole thru it, called the eye, to receive a wooden handle is used. This kind of punch is struck on with a sledge hammer. (See drawing Figure 9.)

A center punch is used to make depressions in metal so that a drill may be started in a given place. It is used also to mark places or distances on the surface of metal when the metal is to be bent at a certain place. Center punches are made from hexagonal tool steel about 4x½-inch, drawn to a point and ground to a short angle. (See figure 10.)

In heating and handling short pieces of stock, tongs are used (see Figure 11) which are made from Swedish iron or mild steel, and are made in various sizes and shapes according to use. They are called pick-ups, flat, round-nose and bolt tongs according to the shape of the lips. Tongs should always be made to fit the piece being forged. One cannot hold a piece of iron properly with tongs that do not fit the piece. They may be heated and fitted to the stock when occasion demands. One important reason why tongs should fit the piece being hammered, is that when turning and striking the piece there is danger of the piece being knocked out of the tongs in a whirling motion and the flying piece of hot

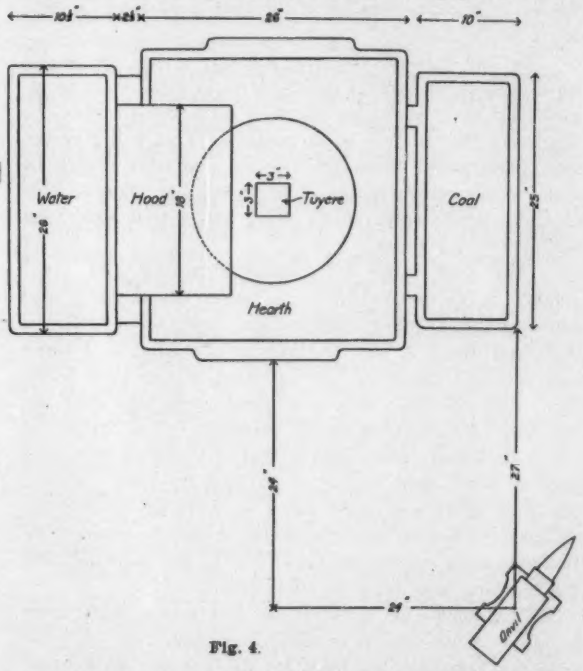


Fig. 4.

iron is liable to strike someone; this danger must be closely watched. Tongs should not be heated red hot and cooled in water; this destroys them.

Hot and cold chisels are used in cutting stock. The blade of the hot chisel is made very thin, while the cold chisel is made blunt to stand the heavy strain in cutting. They are generally made with a hole thru them, called the eye, to receive a wooden handle. These chisels are struck on with a sledge hammer. (See Figure 12.)

Iron and steel are sometimes smoothed with a tool called a flatter. This tool is struck on with a sledge, and should not be used to stretch iron. Its purpose is only to give the work a smooth finish. Figure 13 shows a flatter, and Figure 14 a set-hammer. The set-hammer is always used to smooth and draw stock. All of these tools are made from tool-steel.

A heading tool is made from a flat piece of soft steel with a hole in one end. Sometimes a carbon steel face is welded on. The heading tool is used mostly in heading bolts. They are made with different sized holes. (See Figure 15.)

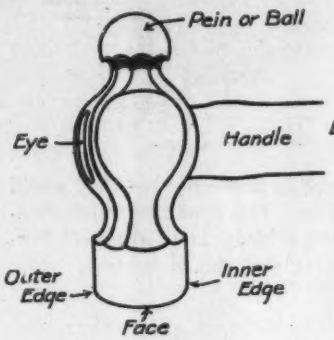


Fig. 5. Hammer.

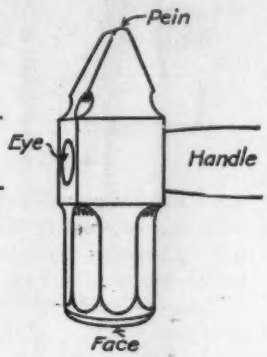


Fig. 6. Sledge.

Swages and fullers are used to smooth and form iron into various shapes. The swages generally have half round depressions in them. They are made in pairs called a top and bottom swage. The bottom one fits the square hole of the anvil; the top one has a hole for a wooden handle. (See drawing of top and bottom swage, Figure 16.) The fullers are also made in pairs called top and bottom fullers. They are used to make depressions in metal. (See drawing Figure 17.) When referring to swages, fullers, and other tools of this character, they are termed the anvil tools. Special anvil tools are used in doing various kinds of forging, and are made when needed. The anvil tools should be kept

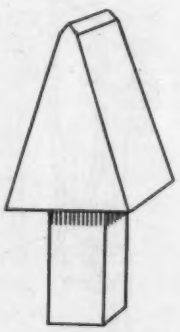


Fig. 7. Hardie.

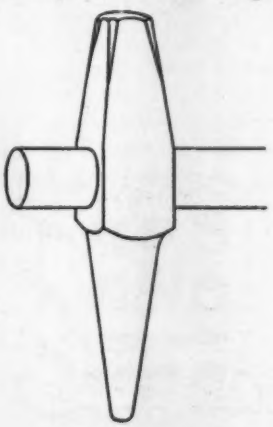


Fig. 9. Punch.

in a tool rack next to the anvil. These tools should be made from about 75-point tool-steel, or they may be purchased from a dealer. Some tools, such as swages, that do not require continuous service, are made of soft steel.

The anvil tools should have a buggy-spoke for a handle. The handle should stick thru the eye of the tool about one inch and never be wedged; if the handle is wedged it is more liable to be broken when the tool is struck a glancing blow with the sledge hammer which is very often the case.

Fig. 18 shows a wrought vise suitable for school work. A cast iron machinists' vise should not be used excepting, perhaps, for bench work. Fig. 19 shows cut of a cast-iron swage block with various sized holes, and depressions around the edge to form iron. The stock used in a forge shop should be kept in a rack built for the purpose. The different kinds of stock, such as soft and tool-steel, common and swedish iron should be partly painted with a different color for each kind, so that there will be no trouble finding what is wanted. For instance, all soft steel should be painted white, tool-steel another color, and so on. There should also be in the shop a shears to cut iron. One of the many hand-power shears in use today would be suitable and may be purchased from a dealer.

In lighting the fire in the forge all of the cinders are cleaned out down to the tuyere. This is done by scraping them to the sides of the fire-place with the shovel. All clinkers should be picked out with the hands and put under the forge. It is a good plan to pick out some of the best pieces of coke and set them to one side

Fig. 8. Hand Punch.

Fig. 10. Center Punch.

on the forge, to be used later on. The slide rod that controls the ash dump at the bottom of the tuyere, is now pulled to allow the cinders and ashes to drop thru. Do not allow a boy to pull the valve after the fire is started, as this wastes the coke and is a bad habit to get into.

When the tuyere is clean, some shavings are lighted in the bottom and when well burned, the coke is raked back on the fire. A little wind is then turned on. Wet coal is banked around the sides and back of the fire. When the fire is well started and loosened up in front with the poker and most of the smoke burned, it is ready for heating. The coal in the box should be thoroly mixed with water before putting it on the fire, for the reason that it cokes better, and packs in around the sides of fire, keeping it from breaking thru. The coal box is always at the right of the worker when he is facing the fire. The box on his left, and between the down draft forges, is to hold water—not for the coal. There should be a water cup of some sort hanging on a hook so that when water is needed for fire or coal it may be handled with the cup.

A fire, when not properly handled becomes hollow, due to the center burning out. If iron is heated in this kind of a fire, it will become oxidized, that is to say, a dirty scale will form over the metal. Iron cannot be properly heated, and it is impossible to get the welding heat with a fire in this condition. The reason a fire be-

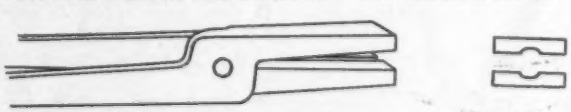


Fig. 11. Flat Tongs.

comes hollow is that it may be filled with clinkers, or too much blast may have been used, and when it comes in contact with the pieces being heated causes them to cool and oxidize. Sometimes the fire will not be directly over the hole in the tuyere; which is one cause of poor heating. This is a common fault with boys working at the forge. Always have the fire over the hole in the tuyere, and not to one side.

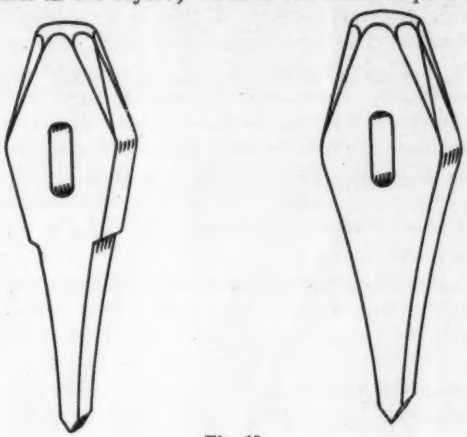


Fig. 12.
Hot Chisel. Cold Chisel.

When the fire becomes hollow and dirty, clean it by picking out the clinkers with the poker or scraper, then move the sides of the fire towards the center of the tuyere with the shovel; keeping the well coked inner sides near the center of the tuyere, and having the center of fire over the hole in the tuyere. Wet coal is now banked around the outer sides. Always have a thick bed of coke under the piece being heated and regulate the blast so as not to burn out the center of fire at once. See drawing of fire with piece about on the same plane with bottom of hearth; notice dotted lines representing the wrong way to put stock in the fire. (Fig. 20.)

Fig. 13. Flatter.

Fig. 14. Set Hammer.

If two pieces of iron are placed in the fire and heated, they will become gradually softer until they reach a state where the metal has become sticky. If touched together the two pieces will stick. This is what is known as welding heat. If they were taken to the anvil and hammered while in this condition they would unite and become one piece. This would be called welding. All metals cannot be welded. Iron, soft steel, low-carbon tool steel and spring steel can be welded.

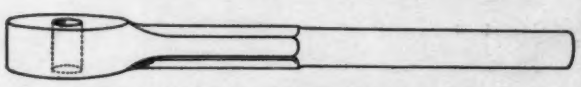


Fig. 15. Heading Tool.

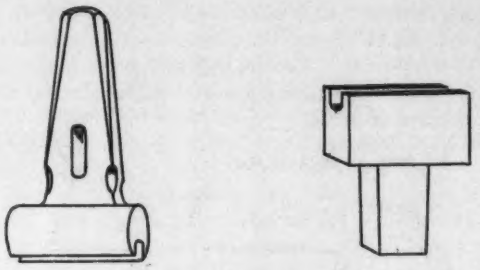


Fig. 16. Top and Bottom Swages.

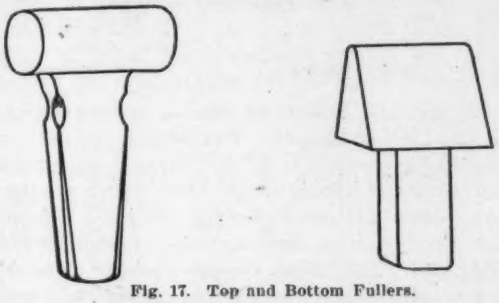


Fig. 17. Top and Bottom Fullers.

A flux is used in welding steel—this excludes the air and forms a pasty surface on the metal which is squeezed out from between the surfaces of metal when hammered. Borax and the many welding compounds are used. Very seldom is it necessary to use a flux on iron. Clean sand is used by many, which is good. Borax, or welding compound is sometimes used on very thin stock. For ordinary welding, such as is being done in school shops, borax should never be used. It is a poor practice, unnecessary, and a useless waste.

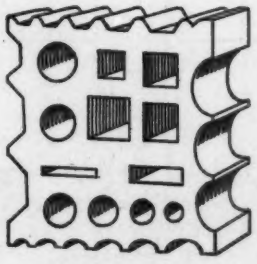


Fig. 19.
Cast Iron Swage Block.

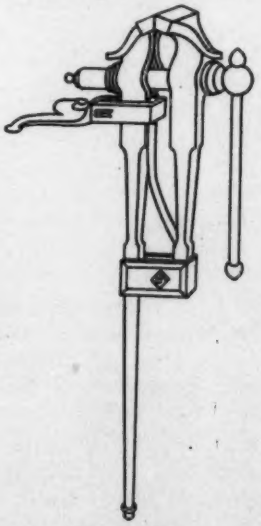


Fig. 18. Vise.

In heating iron, if it is brought beyond the welding heat, it will become softer and softer until it will finally

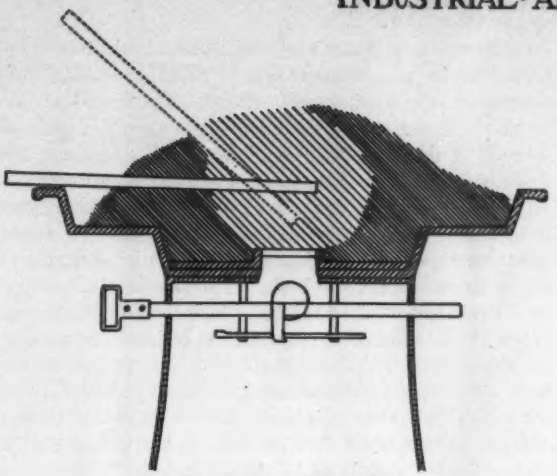


Fig. 20. Section of Forge Fire.

burn. This may be known by the great number of little explosive sparks coming from the fire. These little sparks are particles of iron separating from the bar and burning. As the heat gradually rises, the metal separates. If the bar were now placed on the anvil and struck a hard blow with a hammer, it would fly to pieces. Therefore, judgment must be used in striking the first blow on any welding heat. It should be light, and the blows made gradually harder. A hard blow at the start might make the metal fly to pieces, or make the upper piece slip away from the under-piece. If lighter blows were struck, the weld might be made in good shape.

The principal thing in welding is to have a clean fire. All of the clinkers must be kept out. The fire should be a well burned one, without much smoke or gas, and never any green coal near the pieces being heated. Well burned pieces of coke around the metal should always be used in raising the welding heat. In raising the welding heat very little blast should be used at first. Heat the pieces slowly so as to get them hot thruout.

Some Fundamentals in Manual Training

By S. J. Vaughn

THE movement to put meaning into school work by concreting it, started three centuries ago. During all that time, the educational world struggled to find something better than the abstract, formal discipline, and to take on the notion of interesting and vital content. Only in very recent times, has the new conception found anything akin to a satisfactory realization.

The progress of Manual Training in a third of a century has been somewhat analogous to that of general education during those three hundred years. In a sense, both traveled the same road from abstraction to reality.

From the purely abstract, detail work with its disciplinary ideal, the Manual Training movement has gone thru the inevitable model, imitative, "process" period common to all the arts in their early stages of development. Strange as it may seem, the disciplinary argument for the study of Latin and Greek, the arch enemies of the early leaders of Manual Training, became the argument of these same leaders for their new doctrine.

Altho progress has been comparatively rapid, it has not been made without encountering great odds. Chief among the obstacles to the development of Manual Training, may be mentioned the lack of a well-defined, adequate aim, the small amount of time given to the subject, unprepared teachers, opposition on the part of an influential group of educators, poor rooms and equipment, the lack of vital connection with the other school work, the absence of authoritative literature on the subject, and the ignorance of the general public as to what should be expected.

In the face of these obstacles, there are but few intelligent persons so reckless of the truth as not to admit that Manual Training has accomplished some great things, and has had its full share in bringing about the intellectual awakening which is now upon us.

Some of the results which are particularly noticeable and encouraging, are increased attendance, aroused interest, numerous individual cases of intellectual rebirth, influence on the matter of concreting the methods and materials in other subjects, a fine, intelligent attitude toward work and a very large contribution to the efficiency of the individual boy in industrial work. Any one of such results of Manual Training amply justifies the effort and the expenditure entailed by its introduction.

Excellent as these results are, our aim for the future must be far more comprehensive. With the experience of the past, we have gained much in the knowledge and technique of our work. Now we are ready for a broader field and a very much richer content. We are just now in the sweep of a forward movement which means everything for Manual Training in the schools. This is a movement to intellectualize, to vitalize, and to humanize the Manual Arts work, as well as the other work of the school. It seems odd to talk of having to intellectualize the ordinary school work, and yet how formal and meaningless it sometimes becomes! Often we have failed, in a measure, to appreciate the truth that, now as the old, "the letter killeth, but the spirit giveth life." If the tendency of a great religious propaganda of the first century was to fall into lifeless formality and routine, it is not surprising that such an experience should come to a great art or other educational movement.

In general, our work has been too formal and our aim too narrow. "Tool processes," important as they are, nevertheless constitute but one element of the work. Alone, they are pitifully inadequate to intellectualize

the work of the school shop. They are not sufficient to contribute the necessary richness and growth to the life of the individual boy or girl. Too much time has been devoted to sequential models and processes, and not enough to genuine, thoughtful, *consequential* problems and intelligent, independent effort.

Constructive work is the embodiment of ideas in material form. The more fully the plans represent the thought of the individual doing the work, the more genuinely constructive the work is. A problem in woodwork furnishes much of its richest intellectual material, before the tool work begins. The details of form, size, construction, and decoration must be thought thru by the individual boy to meet the limitations and conditions of specific needs in the home or school, if the work does all for the boy which we have a right to expect. The value, therefore, of any constructive problem will be determined, in a large measure, by the amount of independent thought on the part of the pupil, the adequacy with which the finished product fulfills its purpose, the quality of the workmanship and the preparatory drawing, the taste used, the real joy the pupil gets out of the work, and the state of mind which the whole operation leaves.

All the efforts of planning will find expression in the drawing from the original sketch to the working drawing. The Manual Training work may be made to relate intimately to other school work, such as arithmetic, science, and especially art. In the first five grades, it is absolutely essential that it do this, in order to get the proper motive, the greatest interest and the richest thought content. This claim in no way minimizes or underestimates the importance of either the thought or the discipline of the actual solution of the problem with tools and materials. It simply opens a fertile field of thought not found where the pupil does the tool work from the dictation or the blueprint of the instructor.

However, the problems in the shop may follow a sane plan intended to intellectualize them, and yet fail utterly to arouse a vital interest or meet with a hearty response and a worthy effort on the part of the pupils.

At the middle of the year, a certain class of 23 eighth-grade boys were asked what they had made. In a jeering way, they replied "Toothbrush Holders." "Do you use toothbrushes?" asked the inquisitor, jokingly. Three said "Yes." Twenty said "Naw," in disgust. The boys were then asked what they did with the holders when they were finished. Three took them home. Twenty threw them into the furnace as they left the building. The toothbrush holder was one of a series of models to be made from blueprints. It was planned by the instructor to a nicety as to sequence of tool processes, etc. It might have been intellectualized by permitting each boy to plan his own toothbrush holder within limitations, but it never could have been *vitalized*, especially for the twenty boys.

A third-grade class was having "Cardboard Construction." The teacher laboriously dictated, "Now, children, find the upper left-hand corner and measure one inch to the right. Now measure down one inch. Now find the right-hand corner and measure one inch to the left, etc. Now cut. Now fold, etc., etc., etc.," for thirty minutes. The children blindly followed directions in an automatic way. Finally, when all was completed, the teacher said, "Now, children, what have you?" In a kind of listless, bored way, the children sighed, "I don't know." And we say that constructive work is the embodiment of one's ideas in material form! Exactly ninety per cent. of the little cardboard boxes found their way into the waste basket at the next recess. What shall we say of courses that end in disgust and engender disrespect for both the work and the teacher?

Probably most of us have had the appeal for our "lists of models," even for our "exercises for the class in printing." Think of *that!* Picture 24 red-blooded boys all setting up the same job in 24 duplicates, no one of which is to be printed! Why cannot boys print something that is worth while, and that will do some real service in the school or in the community? The work can lay no claim to *vitality*, until they do. Constructive work can never become vital and capable of the best, until it becomes *purposeful* from the standpoint of the boys and girls doing the work.

One of the prime difficulties in all our educational activities has always been, and now is, the attempt to force upon the child mind adult interests, standards and points of view. We cannot wait for the child to grow up. It is a pathetic thing to see a sixth-grade boy driven laboriously thru dry, tedious exercises with ripsaw, plane or chisel, trying to assume an adult interest that he cannot feel, and to acquire an adult skill in the use of an adult's tools.

We are rapidly coming to see that the emphasis has been seriously misplaced, and that other forms of work are seriously needed. Real work for the boy is coming to mean what is real to him, genuine interest that which arises out of the natural work and play demands of his child life. Boys have been making stocking darners and bread boards, when snow was on the ground and ice on the lake, and their hearts were aching for sleds and shinny clubs!

If, according to the new and beautiful conception, school shall be real life, then the elementary school must be child life, with all that can contribute to the fullness and richness of it, and with every opportunity for the individual to reach the best within his power. Someone objects that this is but an ideal, and yet are there any of us who will deliberately set our marks below it, or lower this ideal? If the conditions are such as to make its achievement impossible now, then we must change the conditions.

When the Manual Training work is purposeful, and is thought out by the individual with the assistance of the teacher, planned to meet certain conditions which are real to the pupil and to involve the elements of good construction, good proportion and good taste, then it will be vital, and it will then be the most potent force in education.

The person who has taught in the spirit of the foregoing has done much toward humanizing the work of the shop, for he must have been guided by the high aim of the welfare of the individual. Whoever has not learned, that in the final analysis society rests as an inverted pyramid upon the individual, has not discovered

one of the fundamental truths that have to do with all teaching and all life.

In our discussions and in our work, we have been dealing too exclusively with systems, courses of study, tool processes, and methods of making things. Perhaps these subjects have not had too much attention, but it is certain that we have seriously neglected the discussion of the boys and the girls upon whom these courses and models, etc., are to be inflicted. The most important, and by far the most serious study now facing us, is the sympathetic study of the boys and girls themselves. The greatest problem of all is how their natural aptitudes and shortnesses, their environment and their ambition, their likes and their dislikes, their goodness and their meanness will affect the work which we shall offer for their welfare, and thru them for the welfare of society as a whole.

It is difficult to understand how one can plan in detail an entire year's work for a class of boys whom he has never met and about whom he knows but little.

Courses must be more flexible and planned in the light of specific conditions. Systems, cherished systems must break, if the good of the individual demands it. "Models" must be thrown to the wind, if by so doing richer life, greater outlook, finer aspiration, and a spirit of service can be built up where the opposite conditions were found.

Boys, especially, do not readily and happily fall into prescribed routine. The tendency has too often been to say to the boys, "If you don't like it, if you don't conform, you're not fit for the school; get out." Scores of thousands have taken the latter alternative and have "gotten out," and they swarm the streets in idleness or evil, probably both.

If one-third of all the school time were given to real and sane occupational work, adapted to the interests and capabilities of the pupils; and if the first consideration were the vital interest and welfare of the individual, whatever his condition; if the boys from the streets and the alleys were invited to a pleasanter and more profitable employment of time; and if the work were planned and taught sympathetically and so that it would appeal to their sense of worthwhileness; the school would be better off, and the streets would be cleared.

When such a spirit as this pervades our work then it will be thoroly humanized. And when the work of the elementary school has been thoroly intellectualized, rationally vitalized and sympathetically humanized, many of the evils that now threaten us will vanish as mysteriously as they crept upon us.

THE KINSHIP OF ART AND INDUSTRY

By Royal Baily Farnum, State Specialist in Drawing and Handwork, Albany, New York

ART and industry are so closely related that their separation produces a work without life in the first instance and an object without spirit in the second. Were you and I without intelligence in that ever working brain of ours, such results would make no difference in the running of our lives. But happily intelligence is ours and it demands an art enlivened by industry and an industrial product imbued with the spirit of art. In our scientific age and our era of mechanical achievements, there has been a tendency to overlook these demands. "In its preoccupation with the scientific," says Caffin, "mankind has grown blind to the spiritual; in its infatuation for the mechanical it has lost its sense of the artistic." The result is that the full benefits of all great achievements in both lines have failed to reach the common lives. Industry, benefited by the increased output of machinery, has been occupied solely with speed and financial gain; Art, hysterical with discoveries of science, has been occupied with processes and technic. This has been developed to such an extent that when the businessman impatiently remarks, "I haven't time for any of your art," you recall that the statement brings with it a familiar sound, and, on the other hand, the many attempts to mechanically reproduce art are common to us all. Yet, the very existence of this magazine is but one of innumerable straws blown by the breeze of dissatisfaction, for those demands of intelligence will be heard.

After all, it is quite an old story. Way back in those pioneer days of the 70's, Walter Smith was earnestly striving to announce this kinship of Art and Industry. Even some of those fine businessmen found time to give heed and Industrial Art and Industrial Drawing was the topic of the day. Alas! how we strayed from the path, leaving foot trails like the wanderings of the "tenderfoot" in the snow. Repeatedly the path was regained but pictorial drawing blinded the vision, sloyd, Russian and Swedish, proved stumbling stones and Manual Training lured away. Once the path blazed clear ahead and arts and crafts gave great relief but then Vocational Education rose like the mirage of the desert until now with strengthened purpose we are following the path again. Once more we are seeking to unite these straying members, kindred, increased in years and stature.

The complete union will be fraught with many a deep struggle, for the Art must be fine and the Industry sincere. "Art," says Ruskin, "is the operation of the hand and the intelligence of man together: there is an art of making machinery; there is an art of building ships; an art of making carriages; and so on. All these, properly called Arts, but not Fine Arts, are pursuits in which the hand of man and his head go together, working at the same instant. Fine Art is that in which the hand, the head, and the *heart* of man go together." And it is the heart of man with a sincere purpose that must be put into Industry.

The ages already have shown us many results of this kinship of the Arts. In the tombs of Egypt, the tem-

ples of Greece, the bronzes of Pompeii and the crafts of the Middle Ages we have examples to stimulate our efforts, examples which must continue to endure. For that is the reason why Art must be related to Industry —to endure. And in the truly fine things which have been done, the test of endurance lies not alone in efficient construction nor alone in the aesthetic quality but rather in their union.

Two familiar terms come to mind as expressing these qualities which combine in the complete problem. They are *Constructive* and *Decorative* design. The machine-made product, first constructively designed, later receives its surface decoration. Here Industry and Art unite in a perfect whole. But the decorative design is not confined to the surface. It may and should enter into the construction. By changing the direction of a line or the proportion of a space it becomes an integral part of the whole. Again, the constructive element should enter into the decoration for it alone determines the possibilities and limitations of the decorative treatment. Thus the final result is truly related Art and Industry, the combined efforts of hand and head and heart. There shall then be no conflict and as is so often the case, no separate appeal.

Our modern complex educational systems have made doubly difficult this complete surrender. Who has not heard over and over again that old time-worn statement, "But I haven't time." The good drawing supervisor, with mind intent upon a "perfect" outline, hasn't a minute to spare. The industrial director, so engrossed with that formidable table of statistics proving the complete failure of ordinary schooling and the crying need for an educational revolution, of course cannot waste time on matters so elementary. One intent upon culture, the other intent upon manufacture, it is little wonder that the bigger ideal is completely obscured. This is especially true when other subjects, similarly unrelated, make known their separate demands. Not until the system employs its energies in demanding that which the various elements are blindly seeking will the union be assured.

It is of interest to note that in one state at least these demands are being made and educational opportunity is given for this relation of Art and Industry. The Vocational Schools Division of the University of the State of New York includes Specialists in both Art and Industry. Under the guiding policy of their chief, it is their special duty to co-operate in the supervision and direction of this branch of education. By correspondence, by personal inspection, by publications, the united efforts of the complete Division seek to develop the kinship of the Industrial Arts.

Similar state organizations may exist elsewhere but it is unfortunately the tendency in the present wave of vocational movements to neglect the art element. The prime aim of fitting a child to earn a living overshadows the greater aim of providing training for a child to live. The difference between the two aims is great. The first may provide a place to sleep and eat but the second supplies the joy of doing. The first provides the technic of work but the second furnishes the stimulus for living:

> "'Tis the privilege of Art
> Thus to play its cheerful part
> Man on earth to acclimate
> And bend the exile to his fate.
>
> And molded of one element
> With the days and firmament,
> Teach him on these as stairs to climb,
> And live on even terms with time."

The first is Industry without Art. The second is the union of the two. Unless provision is made for this union, Industrial Education must fail of its opportunity and like its own spiritless product, cannot endure. With close kinship it must stand like the cathedrals of the Middle Ages, piercing the very skys of the intellect, appealing to all for its strength and beauty and lasting for generations to come, for,

> "All that's good and great with thee
> Works in close conspiracy."

"The man who says that Manual Training is a failure is either misinformed or he is misrepresenting facts. A careful investigation of the matter will reveal the fact that Manual Training in the past has had large educational value, and in no few instances it has had specific vocational value also. This is particularly true at present in the upper grammar grades and high school of many of our medium-sized and larger cities in the Central West."

PROF. F. D. CRAWSHAW,
UNIVERSITY OF WISCONSIN

PUBLIC LIBRARY DETROIT MICH

HAND-WROUGHT JEWELRY

By H. R. Sorensen, Proprietor of the Orno Shop, DeKalb, Ill.

WHILE the general fad for anything and everything handmade, no matter how crude, has been tempered with better judgment, there still remains a strong, rapidly increasing and discriminating demand for well-designed, well-made, tasteful hand-wrought jewelry.

People are now going to makers of jewelry in very much the same way as they go to their tailors—to have something distinctive made to meet certain specific conditions of purpose, fitness, and personal taste. Very much the largest part of such work is done to order, after the craftsman has submitted original designs. Consequently, the maker of jewelry seldomly, if ever, repeats designs, hence his every product is unique.

Wherever such work has been carried out properly in the schools, it has had a marked influence upon the tastes of the students with respect to design and beauty of decorative articles. It has done something to do away with ugly, ornate jewelry with its imitation stones and fantastic patterns.

It is the purpose of this series of articles to describe in detail, the making of jewelry from the very simplest work, to the most difficult processes of working complicated patterns and mounting precious stones in gold. In doing this, the same methods of work will be described as are used in the best commercial shops in this country.

Practically all the fundamental operations of jewelry making may be done with a comparatively small list of tools. Some of the tools are easily made. For the most part, the work covered by this series of articles can be made with the following tools: Sawframe and blades, shears, pliers with parallel jaws, pliers with half-round nose, side cutting pliers, tweezers, riveting hammer, small ball pein hammer, ring mandril, half-round file No. 0, bi-convex needle file, barret needle file, center punch, scraper, soldering gas burner and blowpipe, borax slate, burnisher, and rawhide mallet. The entire list may be bought for $7.00. For school work a number of students can work with one set, altho it is not so desirable.

In the more elaborate and complicated problems of advanced jewelry, a few other tools such as gravers, chasing tools, etc., will be mentioned as needed.

Fig. 1

The designs for beginning work should be very simple, as illustrated in Fig. 1. In making the design, a center line is drawn first, and one-half of the design is drawn on one side of this line. A piece of thin tracing paper is folded and creased. Then it is unfolded and laid on the design with the crease exactly on the center line. With a sharp pencil, the design is then traced upon the thin paper. The tracing paper is again folded in the same place, and by pressing the two sides together, the pencil marks of the design are transferred on the other side of the crease.

A piece of gauge eighteen sterling silver should be selected as material for a fob similar to that shown in

Fig. 1. Sterling silver is a combination of 925 parts of fine silver and 75 parts of copper and costs about seventy cents an oz. Fine silver alone is too soft for practical use.

The gauge of metal is the measurement of its thickness. There is a standard gauge used by all dealers in precious metals. It is numbered from five to thirty-six, the larger number indicating the thinner metal.

A center line is made on the silver and the crease of the tracing paper is placed exactly on this line. The design is then transferred to the silver by the use of carbon paper. This is done by slipping the carbon paper under the tracing paper, with the carbon side towards the silver. All lines of the design are traced with a sharp pencil or a pointed piece of hard wood. After the design has been transferred, all the lines on the silver are retraced with a steel punch, like the one shown in a, Fig. 2. The carbon impression is easily rubbed off, hence the need of tracing with a steel tool.

With the silver lying on a hardwood block, the punch is then placed at point a, Fig. 1. Tap the punch with a hammer and at the same time, turn it between the fingers. Continue tapping until the point of the punch is thru the silver. Reverse the silver and proceed as before, until the hole is large enough to admit the saw blade. Do not strike the punch with a hard blow, as that would make the silver bulge out on the opposite side.

The sawing is the next step. The jeweler's saw frame shown in Fig. 2, is a good style. The saw blades come in dozen lots and in a variety of sizes. No. 0000 is the finest, and No. 6 the coarsest of the square blades. A beginner should use about a No. 3 blade, as the smaller sizes break easily.

To put the blade into the saw frame and thru the hole in the silver, hold the frame between the body and the bench, as shown in Fig. 3. Fasten one end of the blade into the clamp of the frame nearest the bench. The end of the blade should project into the clamp about one-half inch. The teeth should point toward the handle. Put the blade thru the hole in the silver, the design side away from the handle. Press the body against the frame and fasten the other end of the blade into the other clamp of the frame. The blade should be moderately taut.

Hold the silver and frame as shown in Fig. 2.

Fig. 2. Using a Jeweler's Saw.

Fig. 3. Putting a Blade into Saw Frame.

Begin sawing very slowly with but very little pressure of the blade against the silver. Always keep the blade sawing in waste material, which means that the saw should not come in contact with the line. When a corner is to be turned, keep the saw moving up and down without going forward. Then gradually, turn the silver until the desired position has been reached.

The convenience for holding the metal, as shown at b, Fig. 2, is a small board with a V shaped cut in the end. This is clamped to a table or bench.

After as much metal as possible has been sawed out without touching the lines, the cut-outs, as the openings are called, should be smoothed with needle files, shown at c, Fig. 2. All the sawing required by the design, should be done, before the outside edge has been touched.

The same care should be used in sawing the outside edge, as that used in sawing the cut-outs. After the sawing, the outside edge is smoothed with the flat side of a half-round file, No. 0, as shown at d, Fig. 2. Files are made to cut with a forward stroke only. When filing an edge, use an oblique stroke as much as possible.

After the tool work is done, emery cloth or paper is used on the surface of the silver. Emery cloth is numbered from 0000 to 4. For this purpose, take a piece of No. 0 emery cloth and place it on the bench, emery side up. Then rub the design side of the silver back and forth on the emery cloth, until a perfectly smooth surface has been obtained.

All silver work should be oxidized in order to give it a pleasing and permanent finish. A good solution for this purpose is made of Liver of Sulphur, or Sulphurated Potassium. About one cubic inch of this compound is pulverized and mixed with a pint of water. Scour the silver with powdered pumice, using a small brush on the order of a tooth brush. Rinse the silver thoroly and dip it into the solution. Remove it immediately after it turns black. If it is left too long in the solution, the oxidized surface will come off in scales. When the fob has been removed from the solution, rinse it again, and brush with powdered pumice, until the desired shade of gray is obtained. The process of oxidizing takes much less time when the solution is hot.

The swivel and bar for the top of the fob ribbon may be bought from any dealer in jewelers' supplies. To make them now, would involve processes which we shall not take up until later.

COSTUME DESIGNING AND SEWING

By Mathilda C. Voss, Supervisor of Household Science, Champaign, Ill.

THE class in Textiles in the Champaign high school is made up entirely of first-year girls most of whom have had little or no sewing. Most of our time during the first month is therefore devoted to the making of a little combination bag and sewing apron. This is made by hand in order that the girls may become acquainted with the various stitches, hems, seams, etc.

Then we find that over half the girls have never used a sewing machine. The simplest articles possible for them to make is selected, namely the kimona slip-over night-gown on which they have only the side seams, the hem and finishing around the neck to do on the machine.

In the first lesson we talk over various materials and trimmings that would be suitable for the gown and it is impressed upon the girls that the work must be well done, and that the chief object is to make an attractive gown.

The next step is the construction of a pattern for the gown and each girl makes her own pattern. We have ready four or five night-gown patterns of different sizes which have been previously drafted by simply using a plain shirt waist draft made by using a system of measurements.

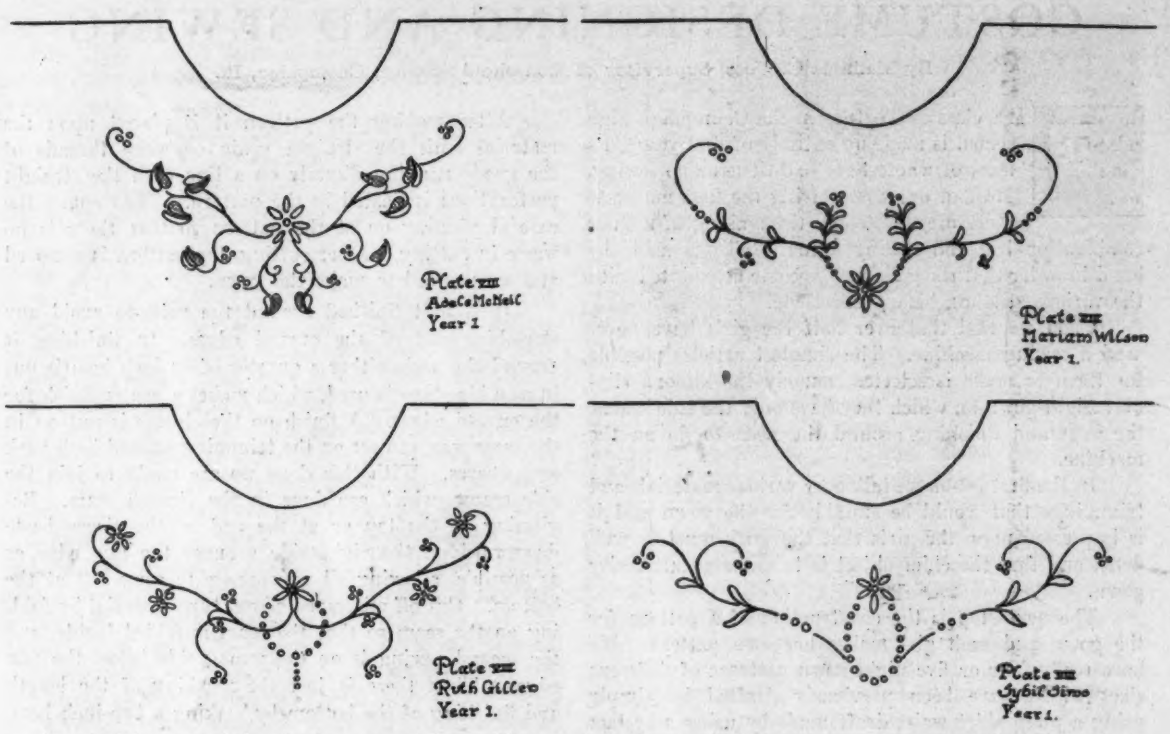
Any drafting system can be used for this. From these patterns each girl selects one and adjusts it to suit her own particular figure.

After making the pattern it is placed upon the material with the straight grain or warp threads of the goods running directly on a line with the straight perforations indicated in the pattern. Then comes the careful pinning on of the pattern so that there is no waste in cutting. After cutting, the pattern is removed and we proceed to make the gown.

It is first finished around the neck to avoid any stretching out of the curved edges. In finishing it around the neck, either a quarter of an inch hem is put in or a bias tape is used, which makes a neater finish for the curved edges. A finish on the sleeves is put on in the same way and set on the trimming around both neck and sleeves. With this done we are ready to join the side seams, which are done in the French seam. Beginning at the top or at the end of the sleeve baste downward on the right side as near the raw edge as as possible, allowing all unevenness to come out at the bottom. Cut off all frayed edges, turn material by folding on the seam so that the seam is folded inside, and the second sewing is on the wrong side below the raw edges. Then there is just the marking of the length and finishing of the bottom by making a two-inch hem.

These girls are required to take art and design along with this textile course, and an effort is made to correlate the art with the clothing as much as possible. At the same time that these girls were making their gowns,

WORK OF FIRST-YEAR GIRLS IN THE CHAMPAIGN HIGH SCHOOL.



in the art periods they were devoting their time to the making of appropriate designs for their gowns. They cut out just the upper portion of the pattern of their gown so as to get an idea as to the general size and proportion of design. Then from the various studies they have made in the art classes they make their designs.

This work has proven unusually successful and we hope to get still better results with our shirtwaist and dress designs.

THE TEACHING OF DOMESTIC ARTS

By Mary B. Hill, Supervisor of Art, Champaign, Ill.

THE teaching of art in the present day high school has many different phases. It should give the pupil fundamental training that will be of service in the home or shop, as well as valuable for its cultural training.

Costume design presents a very important field, peculiarly adapted to women.

The illustrations shown represent the application of embroidery designs to the lingerie made by the first-year high-school girls of Champaign, Illinois. This work is accomplished by the co-operation of the Art Department and the Domestic Science Department of the school. While the pupils are preparing their garments in the sewing classes they are busy collecting material and preparing designs in the art classes, which later are applied to the garments.

Only such specimens as are suited to embroidery designs are chosen. Then careful studies are made of them as to composition and color, the final study being worked up in water colors. A wide range of material for designs is accessible. Some which have been found especially good are the mountain ash, barberry, cosmos, dwarf sunflower and woodbine. The mountain ash is selected for its berries which can be worked as eyelets. The barberry for the same reason, the eyelets being elongated instead of round as in the mountain ash. The dwarf sunflower is chosen for its graceful daisy-like character rendering it peculiarly valuable for this purpose.

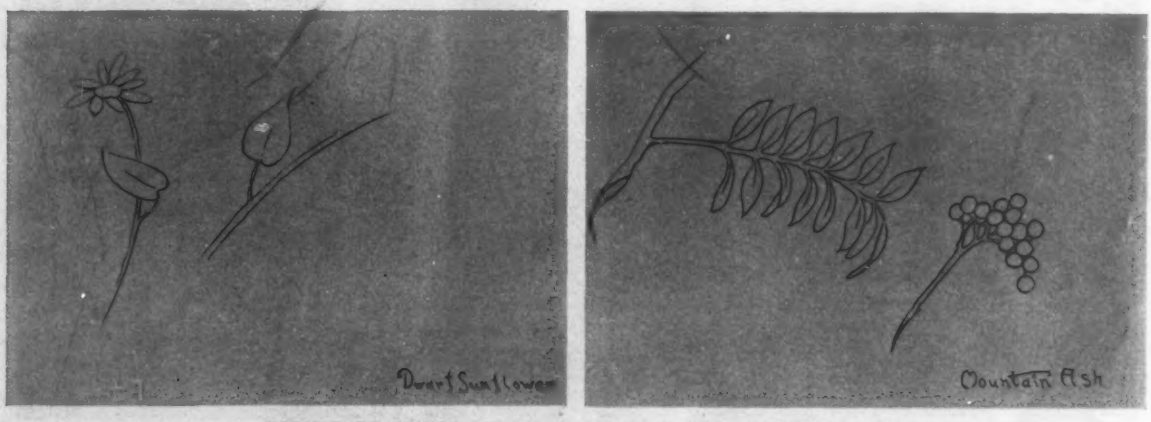
The motive having been chosen, its application to the garment is the next step. A paper pattern of the surface to which the design is to be applied is cut. The center of the design may well come on the center of the pattern, as this is the axis on which the interest of the design should be realized. The design should fade away from the point of interest in a graceful form. This effect is best accomplished by means of curves to which considerable study should be devoted. In general it may be said that a compound curve to give the best effect should not be divided in the center, or at the one-

ORIGINAL WATER COLOR DRAWINGS FROM NATURE.

third division, but rather in between the one-half and one-third point, the object being to obtain a curve of more subtle character.

The illustrations show some of the results obtained: the main idea being simplicity of design and refinement of curves.

The work so conducted adds interest to both the art and sewing course in that it gives the pupils a definite aim in their work. The purpose of such a course should be to teach the work in a practical manner. Thus the girl, even tho she may never continue her art work further than the high school, can feel some manner of independence in the application of designs to materials in her own home later in life.



FORMAL DRAWINGS DEVELOPED FROM WATER COLORS ABOVE.

Manual Training in the Country School

By S. H. Dadisman, Principal Rollo, Illinois Consolidated School

IN the Rollo, Illinois, Consolidated School, all the work has been planned so far as possible to meet rural needs. The first great problem of the rural school everywhere is to command the respect and enlist the vital interest of the community about it. This cannot be solved to the best advantage by regarding the school as an institution wholly separated from the life of the home and the community. Rather, it can best be done by making the school a necessary and indispensable part of every home in the community.

In our case, this problem was undertaken by attempting to make the interests and the specific problems of the farm and the home the material for school work. We hope to assist the community in the wise solution of its fundamental problems of scientific farming, animal husbandry, better buildings, more and better conveniences, finer ideals and richer life. In this way, we hope to command the warmest respect of the people for their own school which we hope to make the center of community interest and activity.

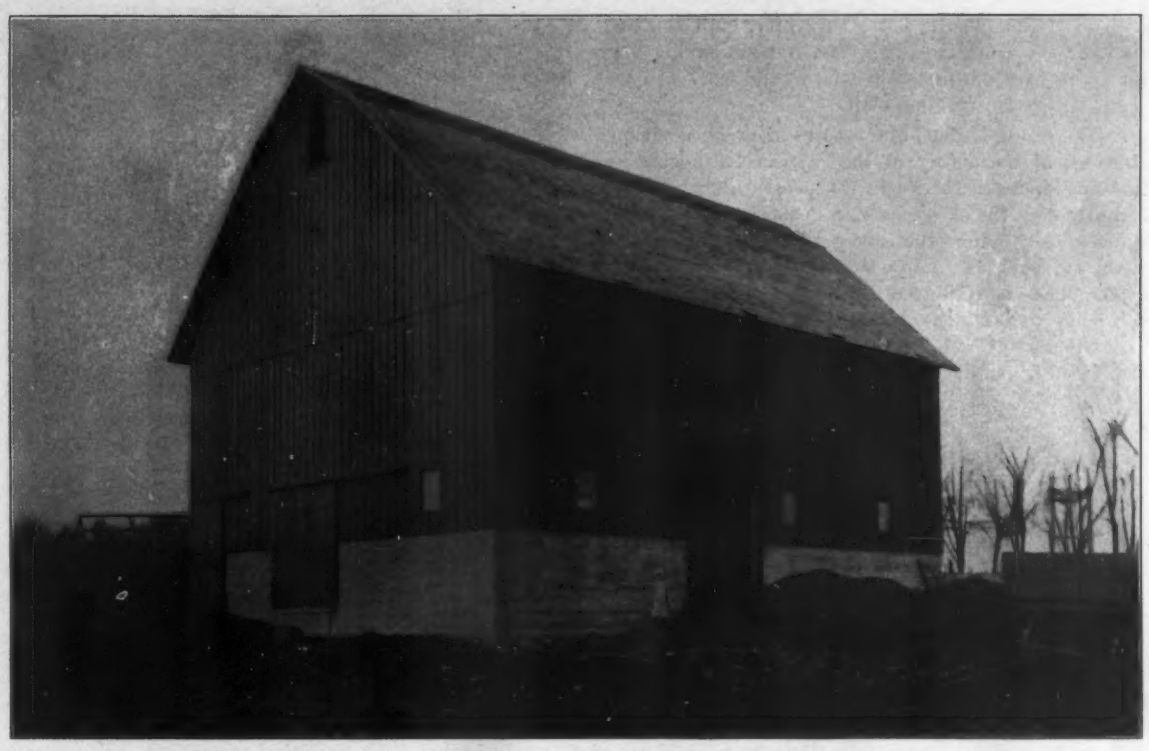
With these purposes constantly in mind, the courses have been planned and a satisfactory start has been made in carrying out the work. What a wealth of material is furnished by the needs and conditions of the farms and homes of an intelligent community, with its problems of the crops, the soil, the dairy, the stock, the poultry, the buildings, etc!

The testing of seed corn is not a perfunctory exercise when it becomes a problem vital to the welfare of the homes from which the boys come. Experiments with fertilizers and tests of soil cannot be meaningless, when they have to do with the productiveness of the very fields in which the boys work. Studies in the feeding, care and judging of stock take on new significance when they deal specifically with the stock which belongs to the boys and their fathers.

As with the other work, the Manual Training problems arise out of the real needs of the school, the home, or the community. Hence every problem is a real challenge to the ingenuity and skill of the boy who undertakes it.

The first need that pressed itself upon us was the equipment of the Manual Training shop. The necessary equipment and conveniences were made, in the main by high-school boys, after the plans had been drawn

ARTICLES MADE IN THE ROLLO CONSOLIDATED SCHOOL



FARM BARN PLANNED AND BUILT BY A STUDENT IN THE ROLLO CONSOLIDATED SCHOOL.

and the material bill carefully estimated. When suitable conveniences had been provided, we were ready to undertake other work. Practically all the work required to make the appliances and conveniences for our $30,000 building is done by the boys. This work includes the putting in of blackboards, making of tables, chairs, stands, presses, picture frames, etc.

In making these articles the boys do not follow somebody's specific directions and drawings. They study the conditions which the articles must meet, the uses to which they are to be put, the cost in time and material, and then they submit plans for the teacher's inspection and criticism. After this, accurate working drawings are made to scale and the articles constructed.

In the work which relates more closely to the farm the boys worked out a new idea for a box in which to test seed corn. Each boy built his own box, took it home, tested his father's seed corn and the corn crop this year in this community speaks for the value of such work.

Milk stools in great variety have been made and taken home where they are still in use. One industrious boy made a brooder and proudly took it home, where it is soon to start on its second year of usefulness. Another boy worked out an ingenious turkey trough. It is so perfectly adapted to its specific purpose that turkeys may eat and drink from it while chickens cannot. Pig troughs are made by practically all the boys and it has been reported that feeding the pigs has taken on a new interest.

An interesting case was where one boy carefully planned and made a Martin box. The plan, in some way, suggested a new style of pigpen to him. He planned and built a pigpen which has attracted considerable attention among those who keep and raise hogs. Led on by his success this same young man has planned a new poultry house which he will build this winter.

These problems, let it be understood, come up in connection with studies which have to do with these particular phases of farm life.

As an illustration in the Animal Husbandry class, the matter of a general purpose barn was under discussion. The class visited various barns in the community and studied them in the light of the demands made upon them. Then each boy planned his ideal general purpose barn. The plans were discussed in the class, and finally a composite plan for a model general purpose barn was evolved. Accurate drawings were made to scale, and a complete list of lumber and materials for the full size barn was made and the cost carefully estimated. It was then decided to build the model barn in miniature, but to make all dimensions exactly to scale. This was done.

In a short time a barn in the neighborhood was burned to the ground having been struck by lightning. The son of the owner was one of the boys who built the model barn at school. He proposed to his father to plan and build a new barn. So, with his experience in working with the model barn, he was able to make complete plans and drawings for a barn to suit the specific requirements of his father's farm. This of course was different in many respects from the model barn. The boy made a list of materials, estimated the cost, and

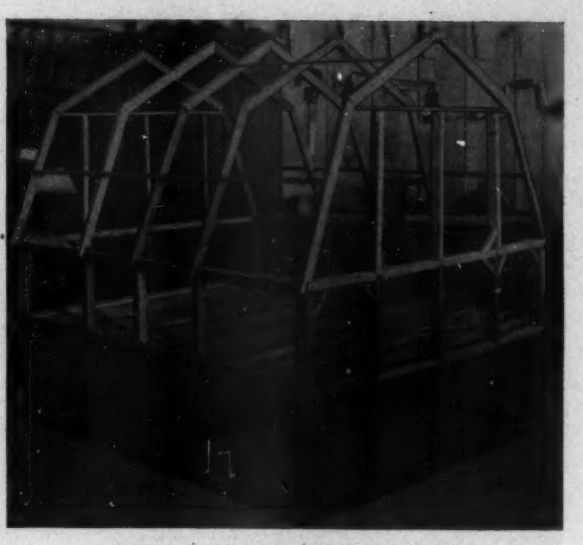
with his father who is not a carpenter, built the barn. Another boy from the same class is now making plans for a new barn on his father's farm, and work will soon begin on the construction of it.

The result is that, after scores of practical demonstrations of the ability of the boys to do independent thinking and skillful work, the people are inclined to feel that what the boys are doing in school is really worth while. They believe that along with the regular school work the boys are doing something in addition that makes them more interested and efficient workers in the home and on the farm. And when they believe this of our school we have hope and evidence that their respect and their interest are strongly drawn toward it.

It should be said at this time, that all carpentry, cabinetmaking or other constructive work in the high school is done in addition to the four regular courses of high-school work, accredited by the State University of Illinois.

We no longer have "bad boys." They all have a genius for work. They have an opportunity to put their ideas into practice and to work off the surplus energy. They have no time for mischief now for they have plenty of far more interesting things to do.

We find that, on the whole, the boys who do the best work of this kind, also excel in their other school work. Useful, thoughtful work develops a creative as well as an appreciative mind. Parents tell us one of the strongest interests the boys have in the school is the shop work, and that they are ambitious to do better things by reason of it.



ORIGINAL FRAMING MODEL OF BARN.

It is but fair to say that I speak not as a Manual Training specialist who would be expected to be enthusiastic over his work, but that my interest and training in the work have arisen out of my experiences in Agricultural schools, together with such work as I am now doing in the Rollo Consolidated School.

Nevertheless to my mind, there is no other work of greater educational value and of greater necessity to the rural boy than this industrial work when properly used.

THE Object of Manual Training is to lead the Thinker to Create more and the Worker to Think more. In doing so it will cause the thinker to think more sanely and the worker to work more truly. ¶ Doing is essential to the highest knowledge, and thinking is essential to the most effective doing. You never really know anything until you have done it, and you cannot do anything effectively until you know it; and, a wisely planned scheme of education will not separate the two. Real Manual Training continually creates its own problems and calls for their solution just as real life does after students leave school. In the manual training room pupils actually learn to live by living instead of by preparing to live. ¶ It is an effort to keep the student, in after life, from falling into that atrophied state of inactivity in which he everlastingly dreams dreams, but does not have the courage to carry a single idea into realization. ¶ Manual Training, and by this term I mean all kinds of handwork, is not only a new form of culture, or a preparation for the industrial world, or learning a trade; it should be any or all of these, depending upon the time devoted to it. Manual Training is a fundamentally distinctive system of education.

MILTON CLAUSER

THE GRAND RAPIDS MEETING

THE seventh Annual Convention of the National Society for the Promotion of Industrial Education and the Third Annual Meeting of the Vocational Guidance Conference were held jointly in Grand Rapids, Mich., October 19th to 25th. Practically the entire week was given over to the meetings of the two societies. The pulpits of many of the churches of Grand Rapids were occupied on the 19th by speakers chosen from the two associations.

The program was enlivened by several spicy discussions. It was evident that certain educators do not agree with certain publications which have been issued from Wisconsin and Indiana and they made it known in a manner which was unmistakable. In the discussion of "unit" and "dual" control of industrial education, it developed that this question has not yet been settled to the satisfaction of everyone. The proper industrial education for women and girls was discussed but no unanimous decision was reached.

The exhibits, which occupied the entire second floor of the Furniture Exchange Building, attracted a great deal of attention. In conjunction with the school and commercial exhibits, a program of lectures, illustrated by stereopticon and motion pictures, was given daily. The subjects varied from a description of the manufacture of carborundum to the Schools of Munich.

The following extracts are from addresses given during the meetings:

President Redfield's Address.

"It is the human pathos of our problem which appeals to me, the pitiful figure of the boy or the girl, faltering on the edge of the strenuous struggle of life needing to earn, yet knowing not how to earn and forced to enter the battle without the slightest training for the contest.

"The spirit of our society, if I understand it correctly, is constructive. We, therefore, strive to take a broad and catholic view believing that the comprehensive work of preparation is needed for the working out into definite fact of our purposes. We look for growth and evolution. We do not desire a "boom" nor do we think that the spirit of opportunism, which would catch at the immediate advantage of today, is that which will be most effective in promoting the permanence of our cause. We feel it wise to absorb from every side light from all who are interested. We neither seek nor offer a panacea or patent remedy. We wish to remove the ills with which we deal by study and by processes of education. We covet the co-operation of men and women of all views, yet we prefer not to align ourselves with any single phase of opinion.

"Let me suggest that while we must not forget the great debt we owe to the private vocational schools, yet the future of industrial education lies in the hand of the public school. The private industrial schools have been the beacons which have lighted the course on which the ship of state must now sail. I do not venture to let my thoughts run freely into the social results of removing our industrial misfits. I can hardly picture, as a manufacturer, what it would mean in a great factory to have every employe trained for his work and fitted for it. This is a little too much of an industrial heaven for me to grasp at once. Yet I wonder if it may not be true of the work we have undertaken that it hath not entered into the heart of men to conceive the great things which are prepared for our people when industrial education and vocational guidance shall each have wrought their perfect work."

"Peace, precision and prosperity in our industries and happiness and hope in our homes," will be the result of correct industrial education.

"If we thus bring skill and if we bring peace we have taken long steps toward bringing prosperity, for in the land where skill works in peace, prosperity is normally present, and if our industries are full of men and women skilled and working among conditions of peace we have surely opened wide the doors of happiness and hope in the home in which these people dwell. These, to me, are the large visions of the future."—*President Wm. C. Redfield.*

Manual Training Not Industrial Education.

"Do not think that manual training—and you have it here in good form—is industrial education. It is not. I am not talking, either, of culture, or training for citizenship. I am talking about the industrial needs of your own plants, in terms of the men on the many different jobs in this, your city.

"We make a mistake when we think of industrial education in terms of a fine school building, an expensive institution, a corps of professional teachers, and all that. What we ought to do is that which can be done right in connection with present factories and with present equipment, for the most part.

"A vast deal of education is a course given by the industry that takes a green hand and shows him how to do any kind of work. This has been the case with the farmer and artisan since the days of Adam, who had to earn his bread in the sweat of his brow. Farmers are training their boys, mothers are training their daughters. Then came the apprenticeship system, now not so widely used.

"But today we have such new and high ideals, such demands on the employer and the employe in the factory, such changes on the farm, in the home and the factory or office, that we must adopt new ways of training workers in order to get the work done without lost motion and economic waste of resources. We must have some organized institution, such as an industrial system.

"The employe should be trained in the industrial plant itself or in some department of the public school system, provided the school will give instruction in the right way. You men call it 'scientific management' or anything else you please. The aim should be to utilize the great body of information available in every factory for the benefit of workmen, whose needs are now overlooked largely because we are too busy under the pressure of our industrial activities."—*Charles A. Prosser.*

"We are going ahead on the right track, and no one need despair. In the educational systems, called the old systems, there are some mighty good things. I am not here to advocate the old methods, but I should be untrue to myself if I did not pay some tribute to the work societies class as the old. When education turns out boys and girls that can think straight, you need not worry about their making good in almost any kind of work. But that is a difficult task. There are few grown-up people that can think."—*Governor Ferris.*

"If the industries of the country were under the same scrutiny to which the schools have been subjected in recent years I believe it would be shown that they are suffering from the same sort of leakage. In the schools students are constantly dropping out and in our industries men are continually dropping out of their jobs. The average working force turns over so often that your factories lose efficiency.

"What are you doing to stop it? So long as the worker is treated as a non-producing under-dog he cannot be properly developed. Until the employers face the efficiency problem in hiring and firing, the industries cannot reach their full efficiency."—*Meyer Bloomfield.*

"Of course the old idea that people should have an education in order they need not work is foolish. It has often been said by parents that they were giving their children an education so they would not have to work as their ancestors did. Foolish notion—the main feature to education is that it gives people the strength to do their work and gives them a broader view of life and teaches them how to live."—*Frank M. Leavitt.*

"I take issue with the statement that our general aim for the workingman ought to be to abolish the class of unskilled laborer. We know that today the great thing in our industries is the increase in the use of machinery. Much of it may be run by men or women having no skill.

"As a manufacturer of cheap and medium priced furniture I am not hunting for skilled labor. I am more eager to get men who are content to stay in one job, rather than to aspire to know all the machines in the factory. We only need one superintendent."—*George Elwell.*

Vocational Guidance.

"Economic self-interest is attempting to shake off the double burden society has long borne—of using goods worth much less than they cost because poorly and inefficiently made, and of supporting by charity those paid less than their work is worth because of their poverty, inefficiency and consequent helplessness. But while employers are awake to the need of efficiency, industry still beckons to the inefficient, the immature, the unprepared. Low wages and casual employment are open switches that lie ahead on the track of the child laborer of today.

"Business is now saying that if we had the right kind of schools all this would be changed. Child labor would become a blessing instead of an abuse for children. Every one would fit his place. The boy or girl of fourteen who now leaves our school from the eighth grade or the fourth to enter the endless quest for meaningless jobs would be succeeded by the boy or girl of fourteen fitted to choose life's work intelligently and enter upon it with efficiency.

"In accepting this challenge of the business world our educators have, in my judgment, assumed an unwarranted responsibility for this condition. They overlook the fact that for the boy or girl under sixteen years of age there is no place in industry. The time spent in industry or in the pursuit of industry before reaching that age is a loss to industry itself and almost always a loss to the child.

"Our schools are not fair to themselves, therefore, in assuming that they or the child are wholly at fault. Business is saying, 'Here are the jobs, what kind of children have you to offer?' We must reverse the inquiry and say to business, 'Here are our children, what kind of industry have you to offer?'

"I maintain as another consideration of vital importance that no child of fourteen years under any possible system of educational training is equipped to make an intelligent choice of the occupation he desires to pursue."—*Owen R. Lovejoy.*

"There are twenty-one occupations so constant thruout all American cities that it is possible to prophesy with almost mathematical precision just how many people you will find in each city of a given size.

"Altho there are more than nine thousand different ways in which Americans gain their livelihoods, occupations that can truly be termed "constant occupations" only number 21. In every city thruout the United States, for each thousand people you will find on the average three plumbers, three barbers, three tailors, four printers, four masons, four blacksmiths, five engineers, five laundresses, six teachers, seven painters, eight bookkeepers, eight machinists, eight dressmakers, eleven railroad men, eleven teamsters, twelve carpenters, fifteen salesmen, fifteen storekeepers, sixteen clerks, twenty-eight servants, and forty-one laborers. Moreover, these occupations are represented in every city without exception, and in about the same proportion.

What Does Industry Promise?

"Studies carried on in seventy-eight American school systems show that upon reaching the end of the compulsory education period one-half of the children in the public schools are in the sixth grade or below. Certainly the boy who has completed the compulsory education period and is in the third, fourth or fifth grade is not prepared to enter any money earning occupation. The kind of vocational guidance that these boys need is the kind that will keep them in school longer; and the kind of vocational guidance that these school systems need is the kind that will help them carry such boys as these forward thru the grades further and faster.

"The inquiry disclosed the fact that among the fathers of these boys only one in six is now living in the city where he was born, and that among the boys themselves only a little more than one-half are living in the city of their birth. Vocational guidance must have a broader outlook than that which relates solely to the local industries, for if present conditions maintain in the future, one thing that we can be sure of is that most of the young people of any given community will eventually find their life work in some other community.

Quit in Sixth Grade.

"Vocational guidance must have a wider horizon than that presented by the local industries. Moreover, it must be prepared to challenge each industry whether or not any given occupation holds out such promise to the future worker that it may justly ask the co-operation of the public schools. We must ask of every industry 'What are the current weekly wages paid your adult male workers?' 'What are the prevailing hours of work?—the percentage of unemployment?—how high is the death rate among your employes?' We must look at this matter from the point of view of the product and its quantity. If any industry is to demand of the public schools 'How do you propose to train our future workers?' the public schools on their part not only may but must ask the industry 'What have you to offer?'"

"If we are to secure enlightened progress in educational work we must substitute knowledge for opinion, and have action on evidence rather than on speculation. If we are to engage in vocational guidance, we must first secure a basis of ascertaining fact for our own guidance."—*Dr. Leonard Ayres.*

Organized Labor.

"People supposed labor was organized to bring about strikes. The unions are organized to prevent strikes, not to cause them, according to the correct interpretation of its objects. We put up church spires into the clouds and build palatial residences for the wealthy, but many of the workmen themselves must live in poor homes. They do not get wages enough. It is the discord and dissatisfaction arising from such conditions that has caused rebellion in other countries and it would here were it not for organized labor. The unions lift men out of the ditches and better their conditions.

"The American boy, physically, is the best specimen of boyhood on the face of the earth. He leads on the athletic fields. He excels the fellows from any corner of the world. But he is lacking in practical education. When we wish for a painter to do a particular piece of work we must secure an artist from foreign shores. The American product can't do it. Our boys represent the finest specimens of the human race, but when we have important work to do we must get men from foreign countries to do it."—*Frank Duffy.*

"Unit" or "Dual" Control.

"Ever since the creation of the Society for the Promotion of Industrial Education an occasional warning has been voiced by careful students of human affairs against the danger of commercialization of the new education, if the merchant and the manufacturer be allowed to have too great a hand in its promotion. This warning, I need not say, has been vigorously reiterated with definite applications to the Wisconsin plan—a plan which it is claimed affords industry an unparalleled opportunity to exploit both the state and the laborer. The fallacy of this proposition seems too apparent to need elucidation, but allow me to make use of the experience of the past year as a possible index of what may be expected.

"It has been the rule that the members of the industrial board were selected by the regular school board of each community on the ground of peculiar suitability. In many cases they are persons who have had experience in service on the regular board, and in all cases they are men of probity and recognized public spirit.

"I am convinced that our vocational continuation schools will prove to be powerful factors in hastening the reforms which, as is universally conceded, must come sooner or later in the regular school curricula.

"One of the most frequent arguments against a supplementary system of schools is that the plan tends toward class distinctions. This position is in a measure controverted by the fact that certain courses of vocational instruction are bringing out rich and poor alike, thus uniting them on a common basis of interest.

"In the more advanced classes the college graduate and the artisan are frequently seen side by side and in home economics girls and women from all ranks of life work together. Our vocational teachers do not anticipate the creation of class distinctions.

"But let it be granted that this is education designed especially to meet the needs of a more or less well defined 'class.' Without this provision a proportion of the members of this class are in danger of becoming distinguished as vagrants and few of them are afforded the opportunity to help themselves out of the unfortunate class to which their untrained condition dooms them. Between possible class distinctions in education and absolute class distinctions in misfortune, it should not be difficult to choose."—*Dean Louis E. Reber, extension division University of Wisconsin.*

Dual Control Condemned.

"The real issue is whether community control in the interests of the community is to continue, with such developments as changing needs may call for from time to time; or whether social control is to be abrogated in behalf of a control by businessmen in the interests of businessmen.

"The least reflection shows fundamentally bad features associated with dual control.

"First, it divides and duplicates the administrative educational machinery.

"Second, the scheme tends to paralyze one of the most vital movements now operating for the improvement of existing general education.

"Third, the segregation will work disastrously for the true interests of the pupils who attend the so-called vocation schools. Those who believe in the continued separate existence of what they are pleased to call the 'lower classes' or the 'laboring classes' would naturally rejoice to have schools in which these 'classes' would be segregated. And some employers of labor would doubtless rejoice to have schools supported by public taxation supply them with additional food for their mills. The problem is a difficult one, but many intelligent, tho unadvertised, attempts are already making for its solution; and its difficulty is no reason for permanently handicapping the interests of both common school education and a democratic society by abruptly going back upon what, with all its defects, has been the chief agency in keeping alive a spirit of democracy among us—the American public school system."—*Dr. John Dewey.*

Dual Control in Wisconsin.

"The 'natural immobility' of humanity resists the plea of the pulpit, the influence of schools, the advice of the press and the threat of the law. A state wishing to 'budge' this 'natural immobility' needs to command all the means of fostering that are available. These means consist of efficient part-time schools, state aid and compulsory attendance laws. The state has needed all these means in the past and the necessity for them is urgent now. One is not willing to forecast that they will not be needed in the future.

"We have a way of letting children get permits to go to work in all kinds of employment at 14 years of age and then we begin to worry about what we have done. We call out that the employment is unfit, that the employer is crushing, that the children are in poor health, or that they are with little or no efficiency for work. One wonders at times why the state does not end this worry altogether by refusing entirely a permit to work unless the worker is prepared for the task set, and unless the employer has furnished reasonable working conditions.

"The distinct virtue of the law providing for the separate industrial board is the power conferred upon it to levy a mandatory tax for money, without the interference of the regular board of education or the common council. In the third place, there are the objections of parents and employers who contend for their alleged rights. Society demands that children know how to be self-supporting. A few parents object to this. Some employers are more interested in the child as a worker than they are in the welfare of the child as a self-supporting citizen.

"Events show that the co-operation of modern businessmen can be obtained for part-time education. Our people, industrious, energetic, promising, are fast begin-

ning to realize that to train the efficiency of all the individuals is the highest duty of the state."—*Warren E. Hicks.*

"I hold that it is practically impossible to establish and maintain effective compulsory part-time education applicable to all communities and to all industries without first trying out the plan under local option, state experimentation with various plans, and a readjustment of present methods of manufacturing. The work done by the young people must be so arranged that they can be dismissed from the factory for a few hours a week without damage to the method of production. Teachers must be developed competent to deal with continuation-school instruction in such a way that pupils will learn thru a study of real things and not thru a line of abstract thinking. An immediate state-wide law would involve in any fair sized state the matter of taking care of from 50,000 to 150,000 additional children.

"Many occupations do not lead to an acceptable trade and do not require an apprenticeship system.

"I am in hearty favor of allowing the saturated brain of the adolescent youth out of school just so long as schools neglect the problem of giving youth a taste of something real. Then I would draw him back to school for five hours a week for further general education which he would not and could not appreciate in the all-day school of the non-occupational order."—*Arthur D. Dean.*

"Those European countries that have given most attention to vocational education have again and again experimented with the dual and with the unified control, and even on the basis of their experience present opinions are by no means settled.

"I should certainly regard it as a great misfortune to build up permanently two sets of educational machinery with the inevitable tendencies toward conflict of jurisdiction and duplication and waste of public resources. My conviction is that thru a variety of compromises we shall be able to procure the maximum efficiency with a minimum of antagonistic action. In the first place, I should recommend that in any state where, in the estimation of those responsible for legislation, educators themselves have not arisen to a proper appreciation of the meaning and methods of vocational education that, for the time-being, in the larger centers, at any rate, separate forms of control be established, with the expectation that as soon as demonstrably valuable results have been procured in vocational education, a gradual grouping of the machinery of administration will be possible."—*David Snedden.*

Industrial Training for Girls and Women.

"Before one can decide what kind of training either the average boy or girl should have, he must take into account what that average boy or girl will probably do.

"Let me introduce a few figures: According to the census of 1910, of which we are just getting returns, there are in the United States something over 44,500,000 girls and women. About one-half of them, or about 22,500,000, are over 21 years of age; about 31,000,000 are over 10 years of age. Of these, 22,500,000 are married. We may really assume that as large a proportion of the remaining 22,500,000 will be married. First is the girl herself. Consider what happens when an unskilled girl marries. She is undertaking a many-sided and difficult business upon which the health and happiness of a social unit—a family depends. She is an unskilled laborer. How can we expect anything but a certain contempt for the duties of the household when we have in no way given her her training for them?

"It is hardly necessary to quote figures to prove that the chief occupation of these girls and women is, or shall be, what we call 'housekeeping.' Moreover, it is going to be housekeeping on small means, since the average income of a family in this United States is less than $500 a year! Out of the nearly 45,000,000 young and old women in the United States there are as a matter of fact, only about 7,000,000 over 10 years of age who are working all or part of the time in what the United States census calls 'gainful occupations.' If you analyze these 7,000,000 you will find that only about 20 per cent of them (1,500,000) are in shops and factories. By far the largest proportion of these women engaged in any one occupation are in what the census calls 'domestic service,' that is, about 40 per cent of our 7,000,000 working women are helping other women keep house.

"There is another point about these 7,000,000 women that should be kept in mind—their working life—that is, the period for which they stay at trades or professions or in service—is far less than that of men. The actual working life of a woman is probably less than five years. This means that the greater number of these 7,000,000 women, after three to five years' work, marry and go to housekeeping. Now, what have we? Why, simply the fact that an overwhelming majority of our average girls and women are going to do housekeeping.

"On this basis, what kind of industrial training should the average girl get? I have no hesitation in saying, with all the emphasis of which I am capable, that it should be a training in the domestic industries."—*Ida M. Tarbell.*

The Home and Home-Making Schools.

"Back of our industrial workers must be properly functioning homes, and our increased growth or prosperity will depend on the extent to which our educational system becomes diversified so as to meet the demands of the home and industry, and on the extent to which it is individualized so as to train special talents to the point of highest efficiency. That point of view which considers industrial training only in regard to the working world is blocked, and those who, thru the enthusiastic support of the home, neglect the fact that the ultimate home-maker is in thousands of cases a wage-earner too are equally short of gauging the problem that lies before those interested in the industrial training of women for life.

"One thing, however, seems fairly certain and that is that the aim of the trade school must be trade training in specific industries. There cannot be a mixed issue involved in the organization of trade schools. On the side of the home-making school, if it is to be a home-making school, it must function in terms of the home only. We cannot have hybrid schools. That is, a trade school especially a school where pupils are prepared for industry in six months or a year must give specific skill by concentration on the processes involved.

"Once we catch the vision of what it will mean to the health and general wellbeing of our people, when the school system of our country is so flexible that it is always ready to meet a given need, everything else will come.

"We hope to reach the time when a large proportion of the time of both pupil and teacher will be spent in the home and not in the classroom. As in the trade school we do not consider our training complete unless students have been tested under actual shop—commercial shop—conditions, so in our home-making schools we believe that no model cottage or suite of rooms can furnish quite the same experience as can the girl's own home, where she

would take the full responsibility of getting supper continuously for a month, perhaps, having previously been practiced in each process involved in the preparation of a supper according to the well known project method.

"Industrial education for women must concern itself with the training of our women and girls in the occupations in which they are earning wages. At present we have only included in our system of education a fringe of the industries in which women are employed. Back of the working world and conditioning its efficiency is the home. Altho thousands of women are engaged in work outside the home, it is shown by statistics that the majority assume the responsibility of home management at from three to five years after they enter upon their wage-earning occupation. The home is at the foundation of our civilization, therefore training for home-making should be included in our scheme of vocational training for women."—*Mrs. Eva White.*

"The family and home duties of women are insufficient to employ their entire time from school to the grave unless supplemented by industrial activities. Every girl needs some special occupational skill beyond her general training for home-making.

"Only by such skilled activities can a girl worthily employ the time from leaving school until marriage. Only by worthy use of the time between school and marriage is a young woman kept in the unselfish and efficient habits which will make her a devoted and intelligent homemaker. Only by such skillful activities can a woman who never marries fill a self-respecting and respected niche in the world's work. Only by such skilled activities can a married woman without children give her powers full exercise. Only by such reserve skill can a married woman find financial security in reverses of widowhood, desertion, incapacity or incapability of her husband. Only by the discipline of such skilled service before marriage can the well-to-do woman serve wisely as a civic or club worker in the second leisure of middle age."—*Laura Drake Gill.*

Business of the Convention.

A provisional constitution was adopted for one year by the Vocational Guidance Conference, and the following officers were elected:

President, Frank M. Leavitt, University of Chicago, Chicago.

Vice President, Alice P. Barrows, Director, Vocational Education Survey, New York City.

Secretary, Jesse B. Davis, Central High School, Grand Rapids.

Treasurer, James S. Hiatt, Secretary, Public Education Association, Philadelphia.

The following were elected to the Executive Committee:

Meyer Bloomfield of Boston, George P. Knox of St. Louis, Miss Edith Campbell of Cincinnati, O. W. Burroughs of Pittsburgh, and E. M. Robinson of New York.

The National Society for the Promotion of Industrial Education elected the following officers:

President, William C. Redfield, Washington, D. C.

Vice President, George C. Warner, New York.

Treasurer, Frederick B. Pratt, New York.

The Secretary, Charles A. Prosser, holds his position under a five-year contract.

The following comprise the Board of Managers:

J. W. Lieb, Jr., V. Everett Macy, Frank Duffy, James P. Munroe, C. H. Winslow, A. Lincoln Filene, Charles R. Richards, Miss Edith Campbell, Miss Virginia Potter. To fill vacancies, Miss S. N. Breckenridge, Howell Cheney.

The Board of Managers determines the time and place of the next meeting.

PROGRESS IN YOUNGSTOWN.

YOUNGSTOWN is an iron and steel center with a population of nearly 100,000, sixty-two per cent of which are foreign-born. The majority of parents there want their children to learn a trade and unless the school provides for Industrial Training pupils drop out of school as soon as the Ohio laws permit them. The main burden of responsibility, therefore, rests upon the elementary schools, which must to some reasonable degree be vocationalized. Mr. M. L. Burris, Director of Manual Training in the city schools, says that when parents preface their hopes and expectations with "if the circumstances permit," it is a pretty strong indication that schooling is coming too high even as a public enterprise or else the presentday education is not longer considered worth any considerable sacrifice.

Sometime ago he made an effort to ascertain the wishes of parents with the following results: Thirty-five per cent were not planning to send their children to school after the end of the fourteenth year; eight per cent would drop two years later; forty per cent after the completion of the high-school course; eight per cent would probably go to college; and the remaining nine per cent, left somewhat unintelligible by the reports, would of course be divided up in about the same ratios. Ninety per cent of parents selected industrial pursuits for their children and only ten per cent the learned professions. Among the different occupations specified in the answers to questions in the reports were: Butcher, baker, clerk, barber, housekeeper, farmer, plasterer, dressmaker, bookkeeper, and musician. Mr. Burris thinks that no worthy work should be considered too insignificant for the school to share in a sensible and reasonable degree. He is rendering excellent service there and deserves much credit.

"THE SCHOOLCRAFT."

"THE Schoolcraft" is a little paper published in the interest of the Industrial and Academic work of Public School No. 52 of Indianapolis. It is edited in the English department and printed in the print shop of the school. Miss Myrtle Gillespie is the teacher of English and Charles W. Sylvester is the printing instructor.

The following editorial from Volume 1, Number 1, gives an insight into the work that is attempted.

"For three years School No. 52 has enjoyed the advantage of a Printing Department. Much credible work has been done by the boys in the various classes in the seventh and eighth grades.

It has always been the aim of the instructors to keep the work real and practical. In 1912 "A Book About Books" was edited and printed almost wholly by the pupils themselves. Last year, they printed a School Bulletin in which the work of our Prevocational Department was explained.

"Schoolcraft" is the outgrowth of many earnest desires on the part of teachers and pupils to issue a school paper of their very own. Much interest has already been shown in the English work in the writing of the Local News. Soon we hope the whole paper will be a product of their own in every respect,—writing, compiling and printing."

INDUSTRIAL-ARTS MAGAZINE

Board of Editors

WILSON H. HENDERSON . . . . Hammond, Ind.
S. J. VAUGHN . . . . . DeKalb, Ill.
E. J. LAKE . . . . . Champaign, Ill.

EDITORIAL

WHO SHALL LEAD?

THE statement is frequently heard now that "those who are doing the most of the talking and writing are doing nothing else." Whether this is true or not, the fact is that the educational world has had some odd experiences along this line.

We are just beginning to recover from a period in which many of the texts and much of the periodical literature for the schools were written by people who, altho well educated, were notoriously poor teachers. Such people often retired early in their careers and became professional writers. In a vast number of cases, texts were written for elementary and high schools, by college and university professors who had had no teaching experience whatever in the schools for which they assumed to write. As an illustration, a university professor now living, wrote a treatise on Elementary Arithmetic. The first lesson covered the ground which the best primary schools in this country do well to cover in three months!

When asked to demonstrate the value of their work and the correctness of their theories by actual teaching, they argued that it was their province to furnish simply the material—the subject matter for teaching.

Similar anomalies are not altogether unknown in our own day. People of very ordinary teaching ability and apparently with a very slight understanding of the difficulty and sacredness of real teaching, have retired and gone into positions which take them entirely out of touch with the public-school problem, and then Paul-like, have miraculously turned leaders, writers and advisers. Frequently, this newly developed zeal turns toward things for which its possessors showed no particular fitness or concern while they were yet engaged in public school work.

We may well begin to ask of those who would direct our work, "What is there in it for you?" To those who would fill our schools with texts and other literature we must say, "It is necessary to know the subject matter; but do you understand a child's method of thinking and attacking a problem? Are you able to teach your own material in a thoroly masterful way? Can you handle boys and girls in a way that will make them feel that they haven't time for foolishness and mischief? Can you lead them—not drive them—to more than mere skill of hand or agility of intellect? Have you, as an adult, ever sympathetically and earnestly lived the child life, met the child's difficulties and shared the child's pleasures in the child's work? Are the welfare and happiness of every individual child uppermost in your mind and nearest your heart?"

We must not ignore the great help and the proper perspective which come from those who earnestly think out educational theories in the study. But for the details and methods of work, we must more and more look to those who, year in and year out, meet in the classroom, the actual difficulties of taking the crude material from every condition of life and molding it into fine, efficient manhood and womanhood.

Industrial education, as well as every other form of education, will succeed or fail at the very point where the teacher meets the boys and the girls. It all amounts to but little, comparatively, unless the men and women who have immediate charge of the work, are superior teachers.

The questions stare us squarely in the face, "Are we really superior teachers? Are we in a groove, as some have charged, content to follow a formula and mark time to a narrowing routine; or are we thinking in terms of life, and dealing with its large and vital problems?" Is it too much to demand that those who undertake to write, those who hope to lead and those who expect to dictate our policies, shall first of all, have excelled in the work in which they propose to lead?

DEFINITIONS NEEDED.

Many of our discussions might be simplified and possibly avoided if some of the terms which we use were defined authoritatively. This was quite evident at the recent meeting of the National Society for the Promotion of Industrial Education, when a speaker severely criticised the use of the term "Vocational Education" in a bulletin issued by the Indiana State Educational Department.

"Vocational Education" is defined by the Indiana law as "any education the controlling purpose of which is to fit for profitable employment." It neglects to state to whom the employment is to be profitable. The Massachusetts definition is any education whose controlling purpose is to fit for a recognized vocation. (Pad the man to fit the coat.) The dictionary definition of "vocation" is a destined occupation to which a person is called because of some innate desire or fitness. Webster gives the definition, "appropriate employment."

Some years ago, a Massachusetts Commission reported that Manual Training in Massachusetts was not contributing to industrial efficiency. Since that time, the statement has been made repeatedly that Manual Training does not contribute to vocational efficiency. If we accept the report of that commission as the rule and guide of our faith, then we may define Manual Training as a form of manual activity which contributes nothing to vocational efficiency, and any discussion of the value of Manual Training as Vocational Education becomes futile.

However, if we accept this definition of Manual Training, then we are in need of another term to describe a kind of training which has for some time been given

in many schools. There is a large number of high schools in which mechanical drawing, machineshop work, forging, patternmaking, cabinetmaking, printing, and kindred subjects are taught by men who are thoroly competent to teach their subjects. Now the controlling purpose of this training has not been to fit for a recognized vocation, but the graduates secure good positions in commercial establishments as a direct result of this training. Furthermore, business establishments are glad to employ the graduates of these schools and courses.

As these schools and courses do contribute to the vocational efficiency of the pupils, if we accept the above definition, this is not Manual Training, altho it has gone by that name. The controlling purpose has not been definitely stated as fitting for a recognized vocation so it is not Vocational Education. After all, is *purpose* the all-important consideration? The Great Teacher said, "By their fruits ye shall know them."

The mere fact that a Massachusetts Commission decided that Manual Training had not contributed to industrial efficiency in Massachusetts is not conclusive evidence that the same is true for the entire universe. The report of that commission showed that Massachusetts needed one of two things, new Manual Training or a new commission.

It is unfortunate that knocking or ridiculing Manual Training has become so popular. At the recent meeting in Grand Rapids, one speaker stated that a New York investigator had been told by a wholesale hardware dealer that he found it necessary to carry certain obsolete tools for the use of Manual Training schools. It may be true that the New York dealers do carry obsolete tools for the use of Manual Training schools in their territory, and the investigator may have misunderstood the dealer.

Inquiry among the hardware dealers of Chicago fails to confirm the report. They state that there is no person harder to please in tools than the manual training teacher, and no one better informed concerning tools. They state that the only tools carried exclusively for Manual Training schools are such tools as 20-inch saws, 7-ounce hammers, and inexpensive drawing instruments. These tools are the same as those used by mechanics, but are smaller in size.

There are many good reasons why we should have Vocational Education in our schools but the cause gains nothing by the belittling of the only subject in the curriculum which resembles it.

VOCATIONAL EDUCATION FOR DEFECTIVES?

A number of times, we have seen in newspapers, announcements of this character: Blankville is to open an industrial school for truants; or it may be for incorrigibles or laggards. The person who opens any school with that announcement, has made a failure of his project before he begins. The impression given by an announcement of that character is that Industrial Education is for only that kind of children. No parent will classify his children as semi-criminal or imbecile, nor voluntarily send them to a reformatory or institution for the feeble-minded. Consequently, schools established with that expressed idea, invariably are failures. Furthermore, they place a barrier in the way of any other person who might, within a period of ten years, attempt to open the right kind of industrial school in that community.

When an industrial school is opened, it should be in an up-to-date building, with good equipment and capable teachers. The school should be regarded as being on the same plane as the high school and for just as bright students. It must not be regarded as a charitable institution or anything of that character.

Educators must at once and for all time rid their minds of the idea that Industrial Education is for chuckle heads and criminals. It requires just as keen a mind and just as high a type of mind to be a good mechanic as it does to be a school teacher, lawyer, or preacher. We place our lives in the hands of mechanics whenever we board a train or street car; we trust our health to mechanics when we have our plumbing installed; we trust our homes to mechanics when we have our houses wired by electricians. By our acts we acknowledge the ability of mechanics. In our thoughts we must get away from that mediaeval idea that education is only for the professional man, or for the person who does not work.

EDUCATIONALIZE INDUSTRY.

"We must become educationists. We must take our system of public education seriously—a thing we have not yet begun to do. So long as the classes in our elementary schools number 40 and over, so long as we have the shortest school day, the shortest school week, and the shortest school year of any civilized country in the world, we have not even begun to make adequate education of our children possible. Far more could be accomplished by taking hold of our public-school system with a serious determination to secure the best results, than by all the legislative fiats in the world. The raising of wages would be the least of the benefits we should secure.

"All our industries and all our social institutions must be educational. We must feel that the question of first importance in regard to all these, by the answer to which they must stand or fall, is of their effect on the character, intellectual capacity, and productive power of the people. Industrial education must be supplemented by educational industry. Our shops and factories must be brought to recognize their responsibility as great educational institutions. It is the responsibility of employers to the Fatherland more than their vocational training that has placed Germany so far ahead.

"In short, the way to raise the minimum wage and all other wages is not by an enforced subsidy in aid of wages, but by those longer and more difficult methods which shall make the desired result inevitable. We must learn to cultivate powers and not to deal in ready-made results,—not to tie on the flowers but to water the plant." —*Joseph Lee in The Survey.*

Duluth, Minn. A series of talks on the subject of vocational guidance has been begun at the Irving high school. The aim of the talks is to get the young men interested in the various trades and professions.

BOOK REVIEWS

Rural Arithmetic.

By John E. Calfee. 119 pages. Price, $0.30. Ginn and Company, Boston, Mass.

For the first time since Frank H. Hall, in 1885, published his "Arithmetic of the Farm and Workshop," does there appear another "farm" arithmetic. While farm operations have undergone great changes in the interval since the appearance of Hall's book, it is interesting to note that the two authors have the same purpose and use practically the same methods in carrying out this aim. But "Rural Arithmetic" marks a distinct advance in the sort of material treated. It is evidently meant for a response to the present loud call for Vocational Education.

The author recognizes the present day weakness in failing to secure skill in the fundamental operations of arithmetic. He, therefore, begins by providing exercises, and urges "much practice" on them to secure "ability to add, subtract, multiply and divide, rapidly and accurately." But the main purpose of the book we are told in the preface, is to treat the "important phases of farm management," and to furnish "reliable and valuable information that can be used to increase the profits in farming."

The first phase treated is entitled "Education and Thrift." The problems under this point out the advantages of skilled labor as against unskilled, care of tools, fruit trees, and live stock as against neglect. The rest of the book naturally falls into four main divisions with several topics under each Practical Measurements, Crop Production and Marketing, Stock Production and Marketing, and Business Problems, the last being simply percentage applied to interest, banking, taxes, etc. The problems are based upon reliable information about farm practice by the most skilled farmers. Statistical material from government reports and bulletins of experiment stations yield many instructive and interesting problems. A good deal of care and skill are shown in the statement of the problems. They are not only practical but they are "thought ticklers" as well. Considerable "digging" will be necessary with a considerable number. For instance, to find a balanced ration for a dairy cow using two or more kinds of feed with known food values, or to mix a proper fertilizer for a crop of corn on a known field, are problems to make *even a teacher* bite the end of his pencil. The text is illustrated with pictures and drawings to good purpose. The publishers are also to be commended for a mechanically perfect page. So much for the excellencies of the book.

There is at least one serious defect in the book from the standpoint of good pedagogy; and that is, an almost complete reliance upon rules for assistance in the solution of the problems. If in addition to the rules, the principles underlying them had been brought out, the book would have been almost ideal. If we could be assured that the teacher using the book would always be competent to bring out these principles, so that all the processes would be rational to the pupil, the lack would not be so serious. This, however, is too much to expect of the teachers likely to be employed to teach "young farmers." It is this shortcoming that *sometimes* crops out in the modern movement for Vocational Education that needs to be watched. We are often in such a hurry to acquire skill that we resort to the short cut of rule-of-thumb instead of the more tedious route of fundamental principles. On the whole, however, the book is to be highly commended. It is far superior to anything else on the market for the purpose.—*S. F. Parson.*

Light Woodwork.

By W. G. Alderton and J. T. Baily. 128 pages. Price, $0.90, net. Longmans, Green & Co., New York.

"An attempt to show how Light Woodwork may be taught in the classroom, and how the practical work may be correlated with other subjects, especially with arithmetic, drawing and composition."

This quotation from the preface expresses the twofold purpose of this book prepared by W. G. Alderton, Headmaster of the Abbey School, St. Albans, and J. T. Baily, Superintendent of Manual Training, Rochester, Chatham and Gillingham.

The need of well regulated work in Manual Training adapted to the intermediate period between the light construction work of the lower grades and the heavier work of the upper grades and high school is felt by many Manual Training teachers in America.

The need of closer relation between Manual Training and other school subjects is realized by a majority of thoughtful teachers of Manual Training and of other subjects.

This book presents in Part I a series of ten specified models, clearly described and well illustrated, and nineteen supplementary models.

The models are to be constructed of small prepared stock offering exercises in drawing, measuring, sawing and nailing, and suggesting topics for composition.

Part II gives a list of correlated lessons in woodwork, object drawing, arithmetic, and composition, in seventeen groups with detailed instructions in the application of arithmetic and object drawing to the construction of models in light wood.

The text is supplemented with notes on the house; on tools; on sharpening; class equipment, woodwork; boards and benches.

The Vocational Guidance of Youth.

By Meyer Bloomfield, Director of the Vocation Bureau of Boston. Lecturer on Vocational Guidance, Harvard University. Houghton, Mifflin Co., Boston. 7x4 3/4 in. 123 pages.

The introduction to the above book, written by Prof. Paul H. Hanus of Harvard University, calls attention to three important tendencies in the educational activities of the day; tendencies toward safeguarding and promoting bodily health and vigor; the establishment of public Vocational Schools of elementary and secondary grade; and a widespread effort to make the non-vocational schools we already have more vital and more effective in shaping the pupils' career.

The author, in the first chapter, discusses the choice of a life-work and the difficulties in this busy age that hinder the youth in finding a vocational destination. Chaos results in boys and girls being tempted by vocations open to them that present easy work and fairly good wages. Then at the time when they begin to need an adult's subsistence they are wholly out of line for skilled employments.

Mr. Bloomfield gives plans and forms of record cards used in some of the eastern schools in connection with

the vocational guidance. One of the most thoro systems of school guidance reported is found in the Edinburgh, Scotland, scheme.

Attention is called to the necessity of keeping the vocation bureau from degenerating into an agency merely for supplying young people to employers and the importance of selecting a director suited to the job and familiar with the industries of the locality. He points out the opportunity the school and teachers have to place the boys and girls in the work for which they seem to have ability.

The author warns against the hasty opening of a city or school vocation bureau, but insists that a careful survey be first made among the businessmen, the manufacturers, labor-union officials, teachers and truant officers, to discover the needs of the community. Upon such information the right kind of bureau must be built.

The book contains many references that will be of interest to students of vocational guidance and training and will serve well as the nucleus of a school vocation library.

The Applied Arts Drawing Books.

Edited by Wilhelmina Seegmiller, Advisor Editorial Committee; Walter Scott Perry; Walter Sargent; James Hall. Eight books and manual for teachers. One for each of the eight grades of the common schools. Atkinson, Mentzer and Company, Chicago.

To those who have known Miss Wilhelmina Seegmiller and her splendid work as an educator of children, these latest drawing books published under her editorial supervision need no comment.

The eight books of the series present in concise and clear sequence, exercises adapted to Art study for each month of each year of the eight years of the common school course. The work is divided between pictorial drawing, design and construction in a measure and manner suitable to the successive grades.

The books are beautifully illustrated in color and many of the illustrations are works of art of a high order. These illustrations are not intended as copies to be reproduced by the children, but as examples of kinds of work to be attempted by the pupils and as an inspiration to observe and appreciate.

The order of work presented is not arbitrary. No texts on drawing and Art can consistently dictate the kind and amount of work to be done in the common schools at the present time. The work is not yet standardized in our schools to the extent of other subjects, if it can ever be standardized.

Teachers are often untrained in the work. A suggestive and instructive series such as this with a manual for the teacher explaining the work in detail, should do much toward developing efficient workmanship and artistic sensibility in America. Let us hope and work for efficient use of such excellent material.

Design and Construction.

By Arthur Henry Chamberlain, Nelbert Murphy and Alfred Guillou. 54 pages. Whitaker and Ray-Wiggin Co., San Francisco.

In this brief series of problems the authors have made a text in pamphlet form to be put into the hands of pupils of the Manual Arts, with suggestive rather than explicit designs.

A nice distinction in the preparation of such material has been made to offset the common tendency on the part of pupils to copy rather than to invent. No dimensions have been given in the designs presented that could be used directly.

The booklet presents general notes on design and construction relative to pottery, leather work, and wood, with full-page illustrations of natural forms suitable to adaptation in the decoration of each. A tasteful and suggestive sample which it is hoped that the authors may enlarge upon in future publications.

The School Paper.

By Charles B. Gleason and George I. Lynn. 40 pages. Published by Hinds, Noble & Eldredge, New York, Philadelphia.

The first 22 pages of this pamphlet are given to a clear and helpful discussion of organizing, financing, editing, and managing a school paper.

The second part of 18 pages is devoted to the "Mechanics of the Paper." It deals with the preparation of copy, methods of illustration, proofs, printing, and distribution.

It is a useful booklet for those who are undertaking the publication of a school paper.

Pencil Sketching.

By George W. Koch. 60 pages. The Prang Company, New York, Chicago.

In so far as there are certain conventions in sketching, these conventions may be taught thru example.

In this series of 33 soft-pencil illustrations, representing in a direct and effective way objects of various texture and form, Mr. Koch gives to the beginner a decided help in the difficult art of suggestive drawing.

The soft pencil is an effective medium, and the use of it is a fascinating art. On calendared paper it gives a crisp and suggestive effect if properly used.

This book will be a help in the effective use of this favorite and convenient medium for school work.

Vocations for Girls.

Prepared by a committee of teachers under the direction of E. W. Weaver. 200 pages. Price, 75 cents, net. The A. S. Barnes Company, New York, N. Y.

When so much is being written and said on the subject of vocational guidance and the importance of providing opportunities for self expression, etc., it gives one pleasure to find a book which gives real practical help on the subject. This book by Mr. Weaver and his associates gives just the facts and data that are needed in the assisting of girls in making a choice of occupations.

It reviews the fields of employment open to women, and recites the qualifications necessary to success in them. It also states the preparation necessary, how it may be acquired, and its cost. It shows the amounts earned by persons in the various lines and gives those facts which a person should know concerning an occupation before entering upon it. It is a valuable contribution to the literature of vocational guidance and will be welcomed by every person interested in the work.

The Idea of the Industrial School.

By George Kerchensteiner. Translated from the German by Rudolph Pintner. 116 pages. Price, $0.50, net. The Macmillan Company, New York, N. Y.

This translation of papers presented by Dr. Kerchensteiner during the meeting of the "Bund fur Schulreform" as a subject for discussion at its meeting in Dresden, October, 1911, is a concise and definite statement as to what the author means by Industrial Education. It is published, he states, with the "hope that it will protect the development of our public schools, both elementary

and high, from committing errors which would be far more dangerous than the sins of the old 'book school'." He states that the whole purpose of public education is to train the youth for useful citizenship, and that no one can be a useful citizen who does not fulfil some function in the state organism, i. e., who does not do some kind of work which is useful to the aims of the community. He does not agree with those who hold that the controlling purpose of Industrial Education is to fit for profitable employment. He says, "The industrial school is an organism which places the formation of character above everything else."

The appendix contains a very complete description of the Industrial Training in one of the elementary schools of Munich. The work is very similar to the Manual Training taught in the elementary schools of the United States. This will be very interesting to Manual Training teachers as the time allowed in Munich is much more than in this country. The book is extremely acceptable at this time.

ITEMS OF INTEREST

CO-OPERATIVE COURSE IN PRINTING.

THE school authorities of Rochester, N. Y., have completed arrangements with the local Typothetae whereby the Rochester Shop School and the printing concerns will provide part-time co-operative courses in printing. The regulations are as follows:

The term of apprenticeship in the printing trade shall be four years, three months of which shall consist of a preliminary or "try out" course at the Rochester Shop school. During this preliminary course the fitness of the pupil for the printing trade shall be determined.

Upon completing this preliminary course, the pupil may enter the employment of some printing plant as an apprentice, the Typothetae agreeing to provide places for a certain number of pupils each year. The apprentice shall alternate weekly between the Shop School and said printing plant, and is to receive from the employer a weekly wage of four dollars for the balance of the first six months—four dollars and fifty cents for the second six months—five dollars for the third six months, and five dollars and fifty cents for the fourth six months. The empolyer is to pay wages for the school time as well as for shop time.

After this period, having faithfully performed his duties, he may devote the remainder of his apprenticeship entirely to the shop, and for which he shall receive nine dollars per week for the first six months—ten dollars per week for the second six months—eleven dollars per week for the third six months, and twelve dollars per week for the fourth six months, during which time, however, he shall be considered under the supervision of the Shop School, and upon completion of the school term and apprenticeship, having passed all the examinations and being graduated from the Shop school, he shall receive from the employer as a gratuitous bonus, in addition to his salary and not as any part thereof, the sum of one hundred dollars.

THE PORTLAND SURVEY.

ONE of the most suggestive sections of the Portland, Ore., school survey, which has been made public, relates to Vocational studies. The chief criticism, made by Supt. J. H. Francis of Los Angeles, in charge of this phase of the survey, is that too much of the Manual Arts' work is cultural and academic rather than Vocational.

According to Mr. Francis, Portland makes the following provisions for Vocational Education in her school system:

"1. School gardening, conducted under a civic organization, independent of the system.

"2. Drawing, commencing with the fourth grade, and extending thru high school.

"3. Manual work for boys, beginning in the fifth grade, and continuing in the high school as general woodshop and machine shop work.

"4. Academic mechanical drawing, in the high school.

"5. Sewing, beginning with the fifth grade, and carried into the high school.

"6. Cooking, taught only in the high school.

"7. Commercial work, offered only in the high school.

"8. Trade work in carpentry, cabinetmaking, patternmaking, machineshop work, electrical construction, architectural drawing, mechanical drawing, printing, cooking, sewing and millinery, offered in the School of Trades.

"With the exception of commercial work and cooking and sewing, in the high schools, the work in the School of Trades, the applied work mentioned is more cultural and academic than vocational in character and purpose.

"The following changes are, I believe, necessary to put vocational work in Portland on the most efficient basis:

Recommendations.

"1. Primary Manual Arts should be introduced into the first, second and third grades, and the work in Manual Training in the upper grades made much less formal.

"2. Cooking should be introduced in the sixth, not later than the seventh grade.

"3. The elementary course in sewing should be modified to include more garment making and less exercise work.

"4. The work in music, and the training of the powers of expression, need much amplification.

"5. The Board of School Directors should assume full financial and educational responsibility for school gardening, and place the work under an efficient supervisor, with sufficient help to carry it out.

"6. Five or more intermediate schools should be organized, to cover the seventh, eighth and ninth grade work. These should offer distinct courses in Commercial and Industrial work, and act as pre-vocational schools. Some of them should specialize in vocational branches, as indicated earlier. One, at least, should offer half-day courses from 9 to 12 a. m., or from 1 to 4:30 p. m., for pupils who must earn something while attending school. Courses of this kind might well be extended thru the tenth year.

"7. If the intermediate school plan is not adopted, freehand drawing in the seventh and eighth grades should specialize, to meet the needs of girls, in costume designing, home decorating and furnishing, pottery and leather and metal work; and mechanical drawing should be offered to boys. The drawing in the high schools needs redirection and additional facilities for work.

"8. Vocational work for girls should receive a much greater expenditure of time, thought and money than it now does.

"9. A vocational guidance director should be appointed for the Portland schools, whose duties should include—(a) A study of the industrial and commercial conditions of Portland and its environment, to discover the trend of commercial and industrial development. (b) Thru communication with businessmen to determine what the schools could do better to fit young people to become efficient in different lines of work. (c) To advise boys and girls in requirements, necessary preparation and prospects in different vocations. (d) To supervise the organization of vocational courses, and (e) to help in the selection of vocational teachers.

"10. The commercial courses in the high schools need reorganizing and in particular need to be much more closely connected with the business life of the city. In a city such as Portland, where the business life is of such fundamental importance, the commercial work ought distinctly to excel.

"11. In a city, too, with such important agricultural surroundings and interests, there should be a first-class Agricultural high school, well provided for practical instruction.

"12. The Portland School of Trades should be merged into a technical high school, retaining the trade courses."

HOME ECONOMICS ANNIVERSARY.

THE first school in the United States to teach girls how to cook and sew was the Kansas Agricultural College, and the woman who founded this school spoke at the celebration of the fiftieth birthday of the college in October last. She is Mrs. Nellie Kedzie Jones, now residing at Auburndale, Wis. H. J. Waters, president of the Kansas Agricultural College, introduced Mrs. Jones as "the mother of domestic science schools in America." Two thousand persons in the college auditorium stood and cheered when she arose to speak.

A Department of Home Economics first became a part of the agricultural college in 1874, but it was not until 1882, when Mrs. Jones came, that this department began its useful career. It started in one room, with two sewing machines, one teacher, and a dozen or more students. Today, Mrs. Jones found more than 800 young women studying in what she characterized "the largest school of home economics in the United States."

The whole country smiled, Mrs. Jones said, when Kansas announced its intention of teaching Homemaking. And she remembered how girls used to come to her, weeping, to ask if they might be excused from taking the Domestic Science work. She remembered, too, how a few years later, they came before they were ready for the work, asking eagerly for the instruction. It was then, she said, that people first realized that training for Homemaking was as important, and more so, than stuffing the minds of their girls with dead languages and useless knowledge.

THE MINNEAPOLIS VOCATIONAL SURVEY.

ABOUT a year ago a group of men and women of Minneapolis interested in the welfare of boys and girls, and somewhat acquainted with conditions that confront them upon their entrance into industrial life, decided that it was time to make a survey of the city. They went to work at once. As a result of their efforts a Vocational Survey of Minneapolis has recently been published by the Minneapolis Teachers' Club.

Ten months were spent in gathering the information, and a month in studying it and getting it into shape for presentation. The report as printed contains the following: 1st, a set of three tables, showing the sources of the material studied, by school, by age, by grade, and by nationality, and the causes of retardation; 2nd, a table showing upon whom the responsibility should be placed for the child's leaving school; 3rd, four tables setting forth the reasons for leaving school, and the economic status of the family; 4th, a table indicating the education of the children after leaving the public school; and 5th, five tables showing the industrial history of each child, his wages, the number of jobs, the kind of work, and his advancement. Appendix number 1 shows the wages and the standard of living in Minneapolis, Appendix II gives a schedule of wages and hours of labor for the unions of the city, and Appendix III gives proposed record cards for use in vocational guidance.

The vital things in a survey of this character are the conclusions arrived at, and the recommendations made by those who have made the survey. The following are the recommendations of the Committee:

1. That as rapidly as would be economical, the schools be organized on the "six-three-and-three" plan, beginning differentiated courses in the B7 grade. These courses should follow three broad lines: (1) leading toward the academic courses in high schools: (2) toward the commercial courses, or directly to business; and (3) toward Manual Training in the high school, or directly to manufacturing and mechanical pursuits.

2. That preparation for the trades can be best and most economically given in continuation schools, in which the instruction shall be closely related to working conditions, while the necessary skill shall be given in actual work under the usual commercial conditions.

3. That the membership of the Thomas Arnold School be enlarged to include all the boys who have reached the age of fifteen and have not yet reached the seventh grade. And that a similar school be organized for girls.

4. That a Department of Vocational Guidance be organized. It should attempt the following work: 1st, a survey of the business and industries of the city, giving accurate and complete information regarding the wages, hours of labor, chances of promotion, and moral conditions of each occupation. 2nd, a survey to indicate clearly the value of the present courses of instruction in high schools, not only of the industrial and commercial courses, but of every course in our schools; in this should be included a comparison with the product of business colleges and other schools, and the opinions of employers regarding the qualifications of the young persons in their employ. 3rd, vocational guidance, which shall assist a child with his parent to find his proper place at work; establish a bureau of information for employers and those seeking employment; at its discretion within the law, issue all labor permits; and have general oversight of the boys and girls at work.

5. That a set of records be kept of each pupil, giving a complete account of his home conditions, his physical condition, and his mental and emotional characteristics, upon which information may be based a judgment concerning his future occupation.

6. That as an adjunct to the board of education an Advisory Commission of fifteen members, composed of employees, employers, and educators be established, whose duty it shall be to report changes in the demands of business and industry, and to advise modifications of the course to meet the new demands.

7. That a law should be enacted, making it mandatory that a boy shall be either in school or at work up to his eighteenth year, and that the Department of Vocational Guidance be charged with the duty of enforcing such a provision.

8. That a School Census be taken of the city, the purpose being that all children of school age shall be in school, and that the Board of Education may have the benefit of this information in planning for the future of the city's school system.

9. That an age-grade census of all pupils in the school be taken, to determine where retardation is taking place; this should be followed by a study of conditions in order to remove the causes of retardation.

10. That the Committee endorses the effort in the legislature to secure a commission to report at the next session upon the whole subject of public charities, including the relief of destitute widows; and the idea embodied in a bill before the present legislature establishing a minimum wage for girls and women.

The report contains ninety pages and may be secured by applying to Unity House, Minneapolis. The price is 25 cents.

FREE PUBLICATIONS OF SPECIAL INTEREST TO FARM WOMEN.

Following its policy to aid farmers' housewives the Department of Agriculture has recently issued a list of free publications which apply particularly to women's work. This list will be furnished free on application to the Editor and Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as are the bulletins which it describes, as long as the department's supply lasts.

The bulletins are divided into over 100 special classes, there being sometimes as many as a dozen pamphlets for a subject.

There is one class of bulletins dealing with dairying, while others specially concern butter, cheese, cream, and milk. Among the bulletins dealing with milk are the following:

The care of milk and its use in the home.
Ropy milk and cream.
Bitter milk.
Clean milk.
Milk supply of cities.
The covered milk pail.
Cost of market milk.
Lacto, a new and healthful frozen dairy product.

Bulletins on the subject "Drugs" are entitled: Harmfulness of headache mixtures; habit-forming agents—their indiscriminate sale and use a menace to the public welfare.

There is a set of bulletins dealing with bees; a set dealing with birds; and another set dealing with such household insects as the ant and the flea. Guinea pigs, rabbits, and rats also have each a bulletin devoted to them. Particular attention is given to poultry under the following heads:

Poultry accounting.
Poultry diseases and pests.
Ducks and geese.
Eggs.
Poultry feeding.
Guinea fowl.
Incubation.
Poultry marketing.
Pheasants.
Squabs.
Turkeys.

Farm conveniences in general have one set of bulletins to describe them and farmers' institutes another. Hints on how to prepare foods cover a wide range of subjects, including apples, banana flour, bread, cereal breakfast foods, clams, coffee substitutes, and corn. There are twelve bulletins devoted to canning and preserving. The fireless cooker is the subject of a separate bulletin.

Fruits and flowers each receive their merited share of attention. Annual flowering plants, directions for making window gardens, china asters, garden sweet peas, peonies, and rose slugs are subjects treated in the floriculture set; while the blueberry, grape, melons, the mulberry, the raspberry, the roselle, and the strawberry make up the fruit culture set of publications. Vegetable culture includes bulletins on asparagus, celery, cucumber, mushrooms, okra, rhubarb, and tomato.

The teacher who wishes to know about helpful organizations for boys and girls, such as the corn, poultry, and canning clubs, may learn about them by sending for the list of pamphlets included under the heading "Agricultural clubs."

Trees, school gardens, roads, paint and white washes, industrial alcohol, and water are samples of the wide range of subjects of these publications which the department will send free to the farm woman on application. The list of titles also will be sent free.

VOCATIONAL EDUCATION FOR NEW JERSEY.

The Legislature of New Jersey has recently enacted a law giving state aid to Vocational Education. The law provides that any school district, whether city, town, township or borough, as well as any county may start vocational schools and receive state money for their support. Separate schools may be organized or departments established in existing schools, according to local convenience.

The thoro, practical nature of the plan may be seen from the recommendations for efficient members of advisory boards for the vocational schools. If the training is for the industries, then two of the members are to be an employer and an employe respectively, representing distinct trades or occupations.

Where the school is one that trains for home duties, it is suggested that the members shall be persons "who have had actual experience in the occupations carried on in the household as mistress of a home, housedaughter, or housekeeper."

Similarly, an advisory board for an agricultural vocational school is expected to have as members at least three successful farmers of the neighborhood.

The local community furnishes the building and one-half the cost of equipment and maintenance, while the state pays the other half of the cost, the amount not to exceed $10,000 in any given year for any one school. The school must be officially approved by the state board of education before it can receive any money.

NEWS AND NOTES FROM THE FIELD

An advisory committee of fifteen members has been chosen to confer with the School Board relative to the most advisable employment for children who leave school before completing the elementary schools of Minneapolis.

Some excitement was caused in the recent annual meeting of the Massachusetts Schoolmasters' Club when Prof. Hugo Munsterberg, of Harvard, severely criticised the Boston Vocational Bureau. He characterized it as unscientific, impractical, and antiquated. Prof. Munsterberg recommended that accurate and scientific psychological tests be made before recommending persons to positions.

Louisville, Ky., is making an experiment with Prevocational Schools. Printing and wood working are at present the only industrial subjects being taught. Louis A. Bacon is in charge of the industrial work, and Miss Edith Lovell teaches the academic subjects.

A plan for operating compulsory Continuation Schools was recently submitted to the School Committee of Boston, by W. Stanwood Field, Director of Evening Centres and Continuation Schools. He proposed that the pupils in the compulsory Continuation Schools, which are to be for children between 14 and 16 years old, be divided into three classes, to be known as continuation trade classes, continuation pre-vocational classes and general continuation classes. The first kind of classes will be for pupils whose occupations furnish preparation for skilled employment, the second for pupils with well defined vocational aim but whose employment does not furnish preparation for such vocation, and the third of pupils who have no specific vocational aim and whose occupation does not furnish preparation for skilled employment. No definite action was taken on the proposition.

The second tri-ennial meeting of the Association of Industrial Teachers of Indiana, was held in Gary, October 31, and November 1st. A number of the teachers spent Friday inspecting the Gary schools and in visiting the steel plant. Approximately sixty teachers sat down to the banquet in the dining room of Emerson School. The speakers at the banquet were H. M. Appleman, Supervisor of Manual Training, South Bend, and Fred D. Crawshaw, of the University of Wisconsin. Saturday morning, H. T. Wilhite, of Logansport, discussed Shop and Drawing Work in the Seventh and Eighth Grades. G. E. Wulfing, Director of Vocational Work in the Gary Schools, explained the Purpose and Plan of the Gary Schools. W. F. Book, State Superintendent of Industrial Schools, gave a short talk on the work of the State Department. In the afternoon, a large party were shown thru the steel mills.

The Committee on Education, of the Federation of Citizens' Associations of the District of Columbia, reports that twelve vocational schools are needed in the District. They suggest that two such schools be opened each year until twelve have been provided.

The Chamber of Commerce, the Board of Education, and the business interests of Denver have united to support an active campaign for Vocational Education in the city. A survey of the city is to be made at once by Adam Puffer of Boston.

The principal subject of discussion at the meeting of the Northeastern Illinois Teachers' Association, held at Oak Park, was the manner of administering Industrial Education. E. G. Cooley favored separate control, while B. F. Harris, President of the Illinois Bankers' Association, championed "unit" control.

The City Commercial Association of New Orleans, in co-operation with the Board of School Directors, has engaged the services of Dr. David S. Hill to make a comprehensive and exhaustive survey of vocational needs of the city and to plan the branches of Vocational training best adapted to those needs.

Provo, Utah. A course of lectures on the subject of domestic science has been begun in the Central school thru the efforts of the local home and school association. The lectures are illustrated and it is expected that the idea will be continued during the school year.

A special committee of the Board of Education, of New York, will have charge of Vocational Guidance. Mr. Arthur S. Somers has been appointed chairman. At a recent meeting, vocational guidance was characterized as an "infinitely delicate and complicated question."

W. L. Park, Vice President of the Illinois Central Railroad, reports that the system of Vocational Education of that company has proven an exceptional success. He states that in many instances shop apprentices who devote part of their time to study in public schools have averaged higher than boys who attend school full time.

A department of Vocational Guidance has been organized at Wellesley College under the auspices of the Women's Educational and Industrial Union, with the co-operation of the college authorities. The department is under the personal direction of Miss Florence Jackson, who will devote her entire time to the work.

Miss Jackson will have monthly meetings with the girls but consultations may be held at any time. The department is not to undertake to train girls for positions but to help guide them into proper employment. Similar departments are to be organized at Mt. Holyoke College and at Smith College. Miss Jackson will visit each of these colleges seven times a year.

Washington, D. C. Practical experience in housework, housekeeping, cooking and care of infants is a part of the Domestic Science course in the grade schools. Actual houses are to be used and classes will be held each week for the purpose of performing all kinds of housework under the direction of the instructor. The girls will keep the house clean, make the bedding and towels, cook the food and keep the dishes and pans in order.

The baby for the study in infants will be borrowed from a day nursery and the pupils will be taught to take care of the child, feed, bathe and clothe it.

The month of January will be known as "factory period" in the Manual Training Department of the Des Moines Schools. This month will be given over to the manufacture of whatever articles the school board may order. Desks, benches, typewriter desks, tables, and other furniture will be built for the schools. Teachers will be superintendents of factories, with classes divided into gangs, over whom will be placed student foremen.

Boston, Mass. The school committee is maturing plans for the operation of Continuation Schools which will be compulsory after January first. Under the provisions of Chapter 805 of the Massachusetts laws of 1913, all children between the ages of 14 and 16, who have left the regular day schools, must attend a continuation class for at least four hours weekly. It is proposed by Mr.

W. Stanwood Field, director of continuation and evening schools, to open three kinds of Continuation Classes; first, trade classes for such as are indentured to learn a trade or skilled occupation; second, pre-vocational classes for such as want to enter a skilled occupation, but whose present work is not related to that occupation; third, general classes for such as have no specific vocational aim and are not preparing for skilled employment. It is intended to limit the general classes to 25 children, and the pre-vocational and trade classes to fifteen. The groups are to be made as homogeneous as possible and men teachers will be secured for the boys and women for the girls.

THE first annual convention of the National Association of Corporation Schools was held in Dayton, Ohio, September 16th to 19th. The meetings were held in the Hall of Industrial Education of the National Cash Register Company. The association, which was organized a year ago, has 110 members representing thirty-six corporations, all of which operate vocational schools in their establishments.

The thirteenth annual meeting of the Vocational Art and Industrial Federation of Chicago, was held in the Hotel Sherman, November 20, 21 and 22. The federation met under the auspices of the Artcraft Institute and the agricultural, manufacturing, home, and recreative interests of Chicago. The subjects for discussion were the relation of agriculture, manufacturing, commerce and industries, to the public schools.

The federation voted to resolve itself into "The National Vocational Art and Industrial Federation," with a permanent President and Secretary. The headquarters of the association will be located in Chicago.

Fort Smith, Ark. Night classes in mechanical drawing have been established under the direction of the head of the Manual Training Department. The classes have been begun following a request that a course in the subject be provided for those engaged in the work and who might be helped thru the assistance here gained. The expense for the course will involve merely the charges for material used.

Upwards of 750 boys and girls are studying in vocational courses in Buffalo, but Supt. Henry P. Emerson believes that there is still room for the establishment of a real industrial school, particularly for increasing the training opportunities for the business woman. The superintendent intends to take up the matter of increased facilities for the Vocational Education of the girls of school age in Buffalo.

Sauk Rapids, Minn. An Agricultural Short Course of ten weeks has been provided for the benefit of farmers, school children and others who wish to study the rudiments of the subject during the winter months. The plan is broad in scope and includes such phases of the subject as testing and selection of seed corn, potatoes, rope splicing and the essentials of Domestic Science and Manual Training.

Included in the program there will also be practical branches in civics such as taxes, expenditure of tax funds, the conduct of county and city offices and practical examples of business dealings as applied to the matters with which men must come into contact in everyday life.

The daily program will begin at 9 or 9:30 in the morning and close at 3 in the afternoon. This allows the students to come and go during the day and gives the opportunity of attending to home duties after classes are dismissed.

Los Angeles, Cal. A new department providing instruction in carpenter work has been provided for children who are defective in certain respects such as arithmetic or spelling. Five girls have already enrolled in the new department and it is confidently expected that in the future this line of work will be open for women who show ability.

The activities also include weaving of baskets, making rugs and other handwork. Half of the time is devoted to handwork and half to the academic studies.

In commenting on the aim of the school, the following statement was made:

"Every now and then we find a person extremely talented along a given line, while defective in another. It is really an interesting problem to study the students and find out the work to which they are adapted and then let them do it.

"Not only are the instructions at the Sixteenth Street School excellent for the purpose they serve, but there is no reason why the pupils should not become expert in the handling of tools."

Louisville, Ky. An appropriation of $2,000 has been made by the board of education for a trade school for girls which opened recently under the direction of a competent instructor. Classes are held in the morning on Wednesdays and Saturdays.

Among the subjects to be taught are the following: Dressmaking and millinery, salesmanship, bookkeeping, English composition, with particular attention being given to punctuation, spelling and penmanship, and business arithmetic. In the latter classes problems from sales slips of stores will be used in the work. In addition there will be a Domestic Science department, with classes in marketing and the planning of meals, household management and cooking.

Co-operation of the merchants and manufacturers is expected to permit girls desiring to attend to do so without loss of pay. A placement bureau will be maintained at the school, thru which girls out of employment will be assisted in securing positions.

St. Louis, Mo. The board of education has arranged for a part-time class for printers' apprentices to be established shortly in one of the high schools. It is intended that the boys shall attend the class one day each week to receive instruction in the principles of the trade and in spelling and grammar, with especial reference to typographical style.

Supt. R. J. Condon of Concinnati, O., is planning an Industrial Night School for women as a part of the public-school system. Industrial work such as sewing, millinery, embroidery and cooking will be taught.

Saginaw, Mich. The added feature of a night school will be included at the new Arthur Hill Trade School. Instruction will be given to men and women, boys and girls in a wide variety of Vocational Subjects, among which are the following:

Mechanical drawing for beginners, Monday, Wednesday and Friday; mechanical drawing for advanced students, Tuesday and Thursday; trade instruction for men, Monday, Wednesday and Friday; trade instruction for women, Tuesday and Thursday; academic branches, Tuesday and Thursday.

The school board has fixed the monthly fees for the various branches as follows: Power station engineering, machineshop practice, electrical engineering, plumbing,

brick laying, cement work, carpentry, cabinetmaking and patternmaking, $2.00 each per month; sewing, dressmaking and millinery, $1.50 per month; mechanical drawing for beginners, $2.00 per month; mechanical drawing for advanced students, $1.50 per month; academic work, $1.50 per month.

Boyne City, Mich. Agriculture has been introduced in the high school. It is the aim of the supervisors to have the pupils who elect this course give at least 25 per cent of their time to the topics bearing on the general subject.

Girl students in the Domestic Science classes of the sixth and seventh grades of the El Paso, Tex., schools recently enjoyed a visit to the local flour mill. Arriving at the building they were shown the various processes needed in making flour. At the icehouse belonging to the plant, they were shown the processes in the manufacture of ice and the operation of the cold storage plant. Accompanying the students were the instructor of the department and the manual arts' supervisor.

That the girls who attend the classes in millinery in the schools of Fort Dodge, Ia., may have hats which are becoming, tasteful and inexpensive has been successfully proven in a recent display of the fruits of their labors. A total of nineteen hats designed, constructed and trimmed by the girl students were exhibited at the high school for the benefit of the public. In the work the girls first drew a design for the particular shape, then a pattern was drawn and a shape constructed. After the preliminary work had been completed the trimming was placed on the creation. The materials were all of the best and the results were perfect fits, becoming styles and satisfactory workmanship. The prices of production varied from $0.86 to $2.68, while the same article in any style if purchased in a millinery shop, could not have been obtained for less than four times the amount estimated by the girls.

Minneapolis, Minn. With the opening of a Manual Training Department in the Hamilton school, 31 grade centers will provide vocational work. It is predicted that only a short time will elapse before every grade school in the city will be equipped with manual training appliances. It has been found a potent force in holding the boys in school until the completion of the grade course.

Des Moines, Ia. Practical Housekeeping has been provided for the girls in the sixth grade of the Curtis school thru the utilization of the model cottage of a nearby settlement house. Similar work will be undertaken by the girls of the Lincoln school.

Under the plan, one afternoon each week will be devoted to this phase of domestic arts' instruction. The girls will do all the practical work according to the rules of their course and under the supervision of a special instructor.

It is intended that the girls who take this course shall be able to do the everyday duties in the home by reason of the home conditions to which they have become accustomed. It has been found that many of the students leave school at the close of the sixth grade while the girls frequently marry between 15 and 16 years of age. For this reason the school authorities have thought it wise to give the practical training at this point in the school course.

Rumford Falls, Me. The first year's work in the Manual Training department of the high school, as laid out, is as follows: Making of hatracks, bench hooks, cutting boards, broom holders, shelves, sleeve boards, tool racks, weather vanes, knife boxes, towel rollers, stationery holders, inkstands, bookshelves, plate racks, skis, umbrella stands, taborets, Indian stools, ironing boards and medicine cabinets.

In the eighth grade, the work will include hatracks, coat hangers, necktie racks, broom holders, shelves, whiskbroom holders, toothbrush holders, weather vanes, flower sticks, stationery holders and children's swings.

In the seventh grade there will be the making of tent pegs, line windows, door buttons, line cleats, necktie racks, coat hangers, cutting board, swing boards and shelves for photos.

Fifth and sixth grades have been provided with a course in whittling. Such tools as the rule, knife, block plane and coping saw will be in use.

Roseburg, Ore. Manual Training and Domestic Science have been introduced in the schools. The sewing and cooking for the present year will be of an elementary character.

Toledo, O. The work in dressmaking at the Scott high school includes not only the "laying" of patterns and the fitting of garments but also instruction in color combination, and ethics of dress. Pupils are taught how to make their dresses, how to judge cloth, how to save money in buying material and what is suitable for each particular type of beauty.

At the present time the girls are engaged in making light woolen dresses for the winter. The material is purchased by the girls or their parents and taken to the sewing class where the teacher decides on the pattern to be used, after which the students do the cutting, sewing and fitting. A small fee is required of the students but the thread and findings are supplied by the school authorities. In addition to the winter dress, the girls will make a skirt, two additional heavy dresses, a light unlined coat and a party dress. The second half of the year will be devoted to the making of spring and summer clothing.

Among the special courses for which state aid is granted, Domestic Science is far in the lead as to the number of Wisconsin high schools which have introduced it. One hundred six high schools are now conducting this course, as against 82 in the case of Manual Training Commercial course, 67; Agricultural course, 53. Considering that practically all who take the Domestic Science course will find practial use for it, this special favor which it seems to enjoy is cause for congratulation.

The people of Stockton, California, seem to be able and willing to do things right, when they undertake them. This statement is borne out by the news which comes from there, that they have just disposed of bonds to the amount of $596,000 for school improvements. These include new buildings for the grades and a new science building for high-school work, built and equipped in the most modern fashion. Among other things, an elaborate printing plant is being planned for use both by the high school and grade boys.

A large sum of money has been set aside for Manual Training, Domestic Science, and Vocational Training equipment. These lines of work are to be greatly emphasized and extended.

Stockton is breaking away from the traditional idea of a few minutes a week in the shop, and is planning to offer plenty of work and plenty of time in which to do it. Mr. Floyd R. Love, the efficient supervisor, is enthusiastically laying great plans for the future of Industrial work.

Among the institutions of the south that are coming rapidly into prominence, is the College of Industrial Arts for girls, at Denton, Texas. The numerous courses offered and the practical character of the work exert a great influence upon the people of Texas and upon the homes in which they live.

Besides regular academic work, the girls have the privilege of taking Fine and Applied Arts, Domestic Science and Art, Manual Training, mechanical drawing, photography, nursing, Agriculture, horticulture, landscape gardening, music and elocution.

Tulsa, Oklahoma, has taken a long step forward by installing good equipments for Manual Training and Domestic Science and Art. The high school has been equipped for these purposes, and one ward school has been made a center for these lines of work in the seventh and eighth grades. The prospects are that soon, a number of the ward buildings will be supplied with modern equipments.

An interesting movement is on foot in West Virginia. The State University has appointed a woman to travel, under the auspices of the State Board of Trade to lecture on Domestic Science. Dr. Harriet B. Jones of Wheeling, has been selected for the work. She expects to lecture in every county of the state at such points as the most women can be gotten together. She hopes to teach the science and art of good cooking to women who have not previously had the opportunities for such instruction.

The school board of Joliet, Illinois, has given the Manual Training classes a large order for picture frames. These frames are to be used in framing pictures to be hung in the various buildings and in the library building.

Vocational work for both boys and girls has been established in West Lebanon, Indiana schools. The people are very enthusiastic over the results so far. Supt. Sarig expects the work to grow.

Mankato, Minn., high school is rejoicing over its fine new forge shop. Mr. Lynn A. Jones, the instructor, has installed new equipment thruout, and the work is starting off with great interest.

The boys of Hastings, Neb., are to have one more day a week for shop work. The board has approved the plan of keeping the school shops open on Saturdays for students who are not in regular employment on those days. The Saturday work will be under the regular instructors of the Manual Training Department.

The introduction of domestic science into the schools of Connersville, Ind., has met with the enthusiastic approval of the patrons. Miss Lucy B. Hawk is in charge of the new work.

McAlester, Okla., high school boasts of the finest high school equipment in the state for cooking and sewing. The department is under the direction of Miss Gertrude Talbot.

New equipment for Manual Training and Domestic Science have been placed in some of the ward schools of Waterloo, Iowa. The high school already has good equipments and well developed courses in both lines.

Mr. Harry V. Johnson, teacher of manual training in the east high school, and Miss Gawe have charge of the new work for the grades. It is expected that before the end of the year every ward school will have a first-class equipment installed.

There is a movement on foot in Oak Park, Ill., to introduce printing into the magnificient new high school. Messrs. Babbitt and Hussey of the high school force, are urging the matter, and it is hoped that they may succeed.

The Board of Education of Seattle, Wash., is endeavoring to perfect a plan whereby school and workshop may be combined for the purpose of Vocational Education. Recently, F. B. Cooper, Superintendent of Schools, addressed the Central Labor Council on this subject. Before taking any action, the Labor Council asked Mr. Cooper to be present at a quiz meeting to answer questions relating to the schools and to Industrial Education.

PERSONAL NEWS NOTES.

Edwin G. Cooley, former superintendent of the Chicago schools, left November 30, for a six months' study of the European agricultural and industrial schools on behalf of the Commercial Club of Chicago.

Mr. Cooley will spend a month in Ireland and Great Britain. The vocational schools of Denmark will next be visited, and then two months will be spent in Germany. After a short stay in Switzerland, the former superintendent will return to this country next May to make his report.

On account of poor health, J. E. Wigman, for twenty-five years head of the manual training department of Central High School, Omaha, Neb., has resigned his position. He will be succeeded by F. W. Bason, formerly instructor of apprentices in the Illinois Central shops, Chicago.

Wisconsin has appointed a state inspector of domestic science. Miss Emma Copley of Fond du Lac, was selected for the position. The office was created by the last Legislature, hence Miss Copley enters upon a large, new field.

FROM A MISSOURI BOY FARMER.

Floyd E. Fisk, of Anderson, Mo., a member of the Boys' Corn Club, was asked by an agent of the Department of Agriculture for a report on his corn crop. The drought had ruined Master Fisk's crop, but instead of a negative report from a disappointed boy he sent the following:

MY CORN.

No use for a boy to look forlorn
When it's too dry in the Ozarks to raise good corn.
He can feed the fodder to the goats
And throw the nubbins to the shoats.
I have done the best that I know how—
I used the harrow, then the plow.
I plowed it deep and close at first,
Then plowed it shallow to quench its thirst;
But it remained dry as dry could be.
I looked and looked and looked in vain—
If I do not succeed I'll try again.

COMPLETE ORGANIZATION.

Art supervisors from nearly all the larger cities of Iowa met on November 8th in Des Moines and organized the School Arts Federation. The organization is the outgrowth of a discussion of the interests of the drawing teachers at the teachers' convention.

The officers of the organization are: President, Charles A. Kinney, of the Art Institute of Chicago; vice-president, Miss Catherine Macartney, art instructor at West high school, Des Moines; treasurer, Miss Grace Dandiliker, of the Iowa State Teachers' College; secretary, Miss Frances Keffer, supervisor of art in the Des Moines schools.